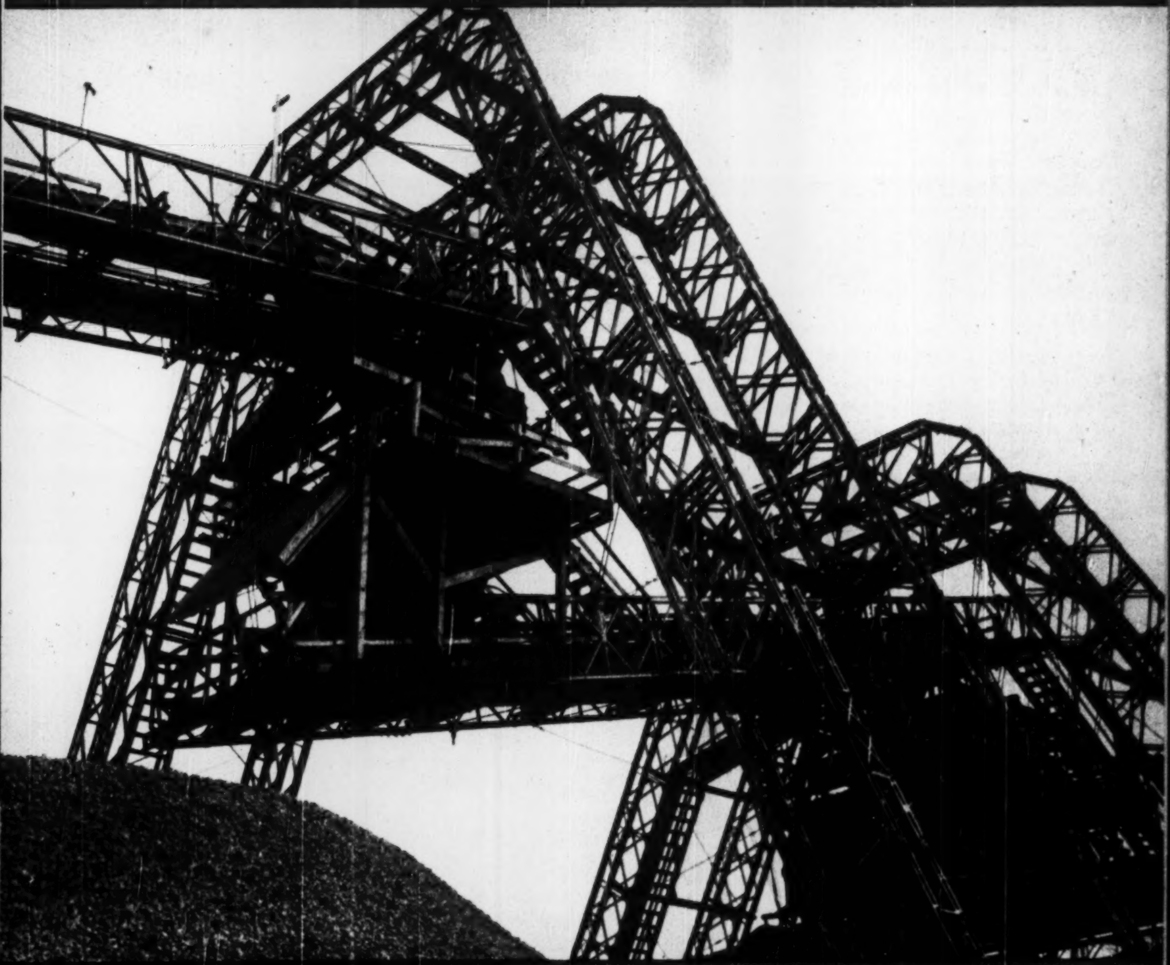
FEBRUARY 9, 1950

# ENGINEERING NEWS-RECORD

SEVENTY-SIXTH YEAR OF PUBLICATION

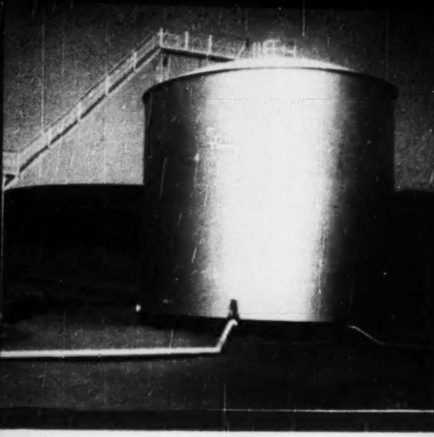


[illegible] bridge cranes [illegible] aggregate handling at [illegible] Dam (see p. 32)

## ★ HOW GOOD ARE CARBIDE-INSERT BITS?

## ★ BUILDING FOUNDATIONS IN PERMAFROST

A McGRAW-HILL PUBLICATION



# the Horton* HEMISPHEROID

**USES**—Hemispheroids are used for storing moderately volatile liquids that require pressures of 2½ or 5 lbs. per sq. in. to stop standing storage evaporation losses under normal operating conditions. These liquids include natural gasoline, motor fuel, aviation gasoline, aqua ammonia, etc.

**ADVANTAGES**—Hemispheroids stop evaporation losses—reduce fire hazard during the storage period—provide dependable and trouble-free operation—cut down corrosion—do not require services of an operator—do not use power or machinery.

**SIZES**—Plain Hemispheroids are available in capacities from 2,000 to 20,000 bbls. for pressures of 2½ or 5 lbs. per sq. in. Noded Hemispheroids are available in capacities from 10,000 to 25,000 bbls. for a pressure of 2½ lbs. per sq. in.

*Above: 10,000-bbl. Plain Hemispheroid used for storing aviation gasoline at the Antofagasta, Chile marketing terminal of the Esso Standard Oil Company (Chile) S.A.C.*

*Right: 20,000-bbl. Noded Hemispheroid used for storing natural gasoline by the Carthage Corporation at Carthage, Texas.*

** Trademark Registered in U. S. Patent Office*

[illegible]

**FIFTY YEARS** experience and background . . . is reflected in the complete line of Construction Tools offered on the occasion of our FIFTIETH ANNIVERSARY.

Throughout the years, SCHRAMM INC., has endeavored to provide not only the best Air Compressors possible, but also recommended the tools that in our experience would prove the most effective and economical.

# SCHRAMM

*Climaxes 50 years Progress with its Golden Anniversary line of*

# CONSTRUCTION TOOLS

**FROM WAGON DRILL . . . TO CHAIN SAWS**

It is, therefore, with considerable pride that we now offer our GOLDEN ANNIVERSARY line of Construction Tools . . . ranging from the WDR-126 Wagon Drill to Chain Saws and also the necessary air hose with all accessories.

THE SCHRAMM CONSTRUCTION TOOLS illustrated here represent only a few of the many available . . . tools that embody our many years of experience and skilled workmanship. Add to this list, circular saws, paint sprays, sandblasts, concrete vibrators, wood and steel drills, air guns, etc.

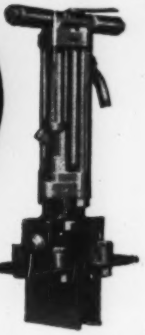
*Write for new 8-page Color Booklet No. SCT-50*

**SCHRAMM INC.**
*The Compressor People*
**WEST CHESTER • PENNSYLVANIA**

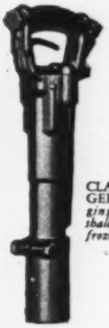
TIE TAMPER —*A well balanced tool to tamp ballast under railroad ties.*

BACKFILL TAMPER—*Tamps more yards of dirt than several men with hand tools.*

PAVING BREAKER—*Use in the hardest concrete demolition work, Street and Highway repairs.*

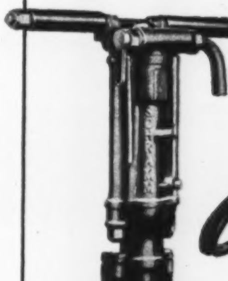


SHEETING DRIVER—*For driving wood or light steel sheeting.*



CLAY DIGGER—*For digging in clay, shale, hardpan or frozen ground.*

TRENCH DIGGER—*For open trench digging where operator can stand erect.*



ROCK DRILLS—*Fast drilling tools for either wet or dry drilling.*

WDR-126 WAGON DRILL—*Drills at any angle to depths of 24 feet or more.*

LEUPOLD *Engineered* PRECISION

**HAND LEVEL**

*Saves* ...TIME ...MONEY

Insure against costly errors due to inadequate equipment. Insist upon Leupold & Stevens Instruments . . . tested, approved and used by engineers the world over for more than 42 years. When you buy Leupold & Stevens products you are assured the finest modern research and manufacturing can produce.

The Leupold Hand Level is precision built for a lifetime of service. Only the Leupold Hand Level has all these features:

- ***Internal Focus.*** **When perfect focus on bubble is obtained for your eye, adjustment is locked in place; no need to re-focus every time level is used.**
- **Streamline design.**
- **Baked enamel finish with gun metal trim.**
- **5½ in. long x ¾ in. diameter.**

**Price $10.50** . . . includes handsome saddle leather case. If your local dealer cannot supply you, order direct from Leupold & Stevens Instruments. Money-back guarantee.

*Write for literature on complete line of Leupold Instruments.*

L&S INSTRUMENTS

**LEUPOLD & STEVENS INSTRUMENTS**
**PORTLAND 13, OREGON**

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# ENGINEERING NEWS-RECORD

**VOLUME 144** **FEBRUARY 9, 1950** **NO. 6**

WALDO G. BOWMAN
**Editor**

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Member ABC Member ABP

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# B.F. Goodrich

*Universal all-nylon* for jobs where traction is problem. Note 2-way tread, bulky wedge-shaped cleats.

These *Rock Logger all-nylons* were on a truck in extremely tough service for 2 years . . . are still going strong!

# ALL-NYLON

## tires give full service with no bruise or flex failures

THE B. F. Goodrich ALL-NYLON tire is now in use—and proving successful—on construction jobs and in other off-the-road operations throughout the country. The record speaks for itself: *no blowouts, no bruise breaks, no flex breaks* . . . and that includes severe operating conditions in mines where flex and bruise failures formerly were common. Now, all-nylon tires are giving operators full service with no bruise or flex breaks.

Along with nylon, B. F. Goodrich uses weftless construction. This means there are no cross-threads to hamper cord action and allow some cords to stretch out. Therefore, tire growth is reduced; tires last longer.

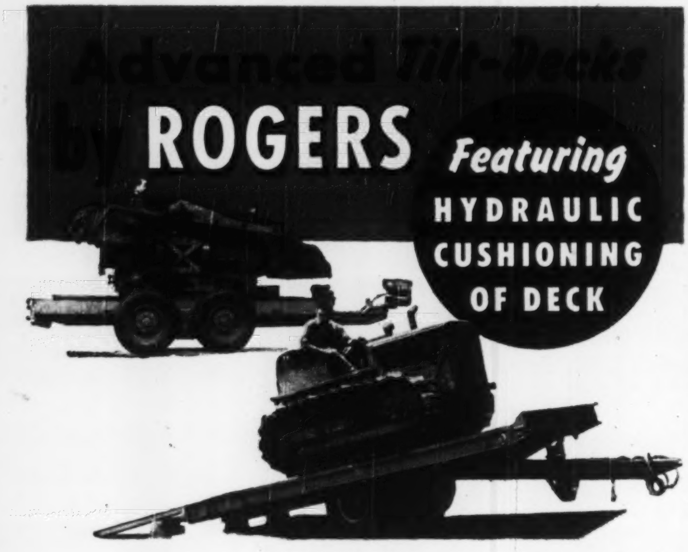
Nylon tires always provide big savings for contractors on jobs where heavy loads and rough terrain have made tire costs high.

The new, all-nylon construction is typical of the continuous improvements being made in truck tires by B. F. Goodrich. Long ago, BFG engineers developed special types of tires for off-the-road service. They constantly developed new improvements. One of these was the nylon shock shield, a major construction advancement now used in all B. F. Goodrich truck tires with 8 or more plies (double nylon shock shield in large, off-the-road tires).

For more information on the way B. F. Goodrich tires can do more work and save you money, see your BFG dealer or write us direct. *The B. F. Goodrich Company, Akron, Ohio.*

RESEARCH KEEPS
**B.F. Goodrich**
FIRST IN RUBBER

**Truck Tires**



**CAPACITIES**
5 TON
7 TON
9 TON
11 TON
14 TON

Through repeated satisfactory experiences users have come to expect greater value in Rogers trailers; and they get it assuredly in these new tilt deck models.

They embody extra strength — easier loading — improved haulability and absolutely reliable braking.

But the new feature appreciated by all, is the hydraulic ram which controls and cushions the deck movement when loading or unloading heavy equipment.

There are sizes for all needs in three types — two wheel on a single axle — four wheel on tandem axles — and four dual tire wheels on tandem axles.

Write for literature and learn how these trailers can effect savings in hauling many kinds of equipment — faster and more economically.

**ROGERS TRAILERS**

ROGERS BROTHERS
CORPORATION
135 Orchard St.
ALBION,
PA.

EXPERIENCE *builds 'em* PERFORMANCE *sells 'em*

*Since 1915*

## NEWS BRIEFS

**Greater Gulfport, etc.**—There's a lot of construction in a plan for development of the port of Gulfport, Miss. Local boosters want the state to spend $5,000,000 for ship refueling facilities, more warehouses, terminal facilities, finger wharfs and machinery. The proposed program would raise from 10 to 25 the ships which could be handled weekly at Gulfport.

**Action, Please!**—Boston's Mayor Hynes will ask Motor Parks, Inc., why plans for construction of an underground garage at Boston Common have been delayed. Hynes says there isn't much Boston can do until the company either gets going or gives up its rights to build.

**Plenty of Bridges**—North Carolina's Highway Department added 2,199 bridges on state and county roads in 1949. Estimated cost was $5,810,820. Of these, 195 were built under contract.

**Tools and Materials Free?**—The Massachusetts legislature has a proposal for a $20,000,000 "made work" program to assure 20,000 persons a $1,000 income.

**Wait and See**—Oregon's Board of Health has declined any recommendation on the addition of fluorides to public water supplies, as a dental decay preventive measure. The board wants to await further tests by the U. S Public Health Service, warns that indiscriminate use of fluorides might be toxic.

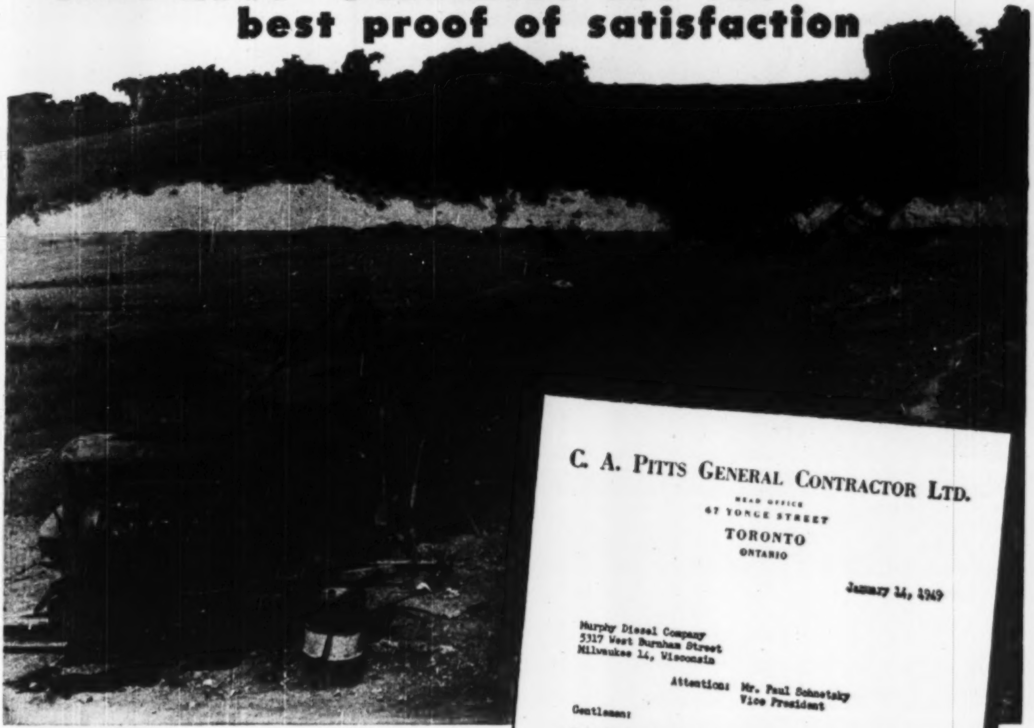
**17-Year Plan**—An 81-member highway advisory committee says it would take $340 million to bring Montana's highways up to the levels prescribed by the federal Bureau of Public Roads. Funds available would permit a $20,000,000 annual program.

**Capital Boom Busted**—Massachusetts has about completed its industrial expansion for the present, according to a survey by the Associated Industries of Massachusetts. With industrial expansion dropping from 1948's $235 million to 1949's $50,000,000, a "marked falling off has been generally expected," according to the association. But it adds that it didn't expect so great a curtailment.

**Construct by Contract**—Arkansas' Highway Commission has been informed that force account work it per-

*(Continued on page 12)*

# REPEAT ORDERS are the best proof of satisfaction



C. A. Pitts General Contractor Ltd.

HEAD OFFICE
67 YONGE STREET
TORONTO
ONTARIO

January 14, 1949

Murphy Diesel Company
5317 West Burnham Street
Milwaukee 14, Wisconsin

Attention: Mr. Paul Schnetzky
Vice President

Gentlemen:

We wish to advise we are now operating our eighteenth Murphy Diesel Engine, and for your information the first Murphy we purchased over ten years ago is still operating every day and giving satisfactory service.

Our experience with your engines has been on many different types of equipment, and we must say that the performance and service has been excellent, for we have had a minimum of down time, with a steady, reliable source of power, which means profits for our jobs.

Yours very truly,

C. A. PITTS GENERAL CONTRACTOR LTD.

M. F. Missiaen
Mechanical Superintendent
and Field Manager

# 18 MURPHY DIESELS

## for C. A. PITTS, Ltd.

● When a leading contractor like C. A. Pitts, Ltd. buys equipment you can be sure he'll profit by his past experience. And when you realize his first Murphy Diesel, now ten years old, is still operating every day and giving good service, you can see one of the reasons why he now operates 18 Murphy Diesels.

The ability of Murphy Diesels to take it in tough service day-in and day-out, year after year, has "sold" them to many a user. Why not find out what Murphy Diesels can do for you. Ask your Murphy Diesel Dealer or write direct.

*Murphy Diesel Engines and Power Units, 90 to 220 H. P.; Generator Sets 60 to 133 K.W.*

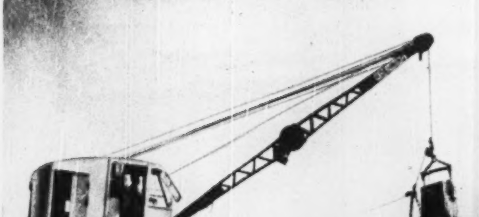
MURPHY DIESEL

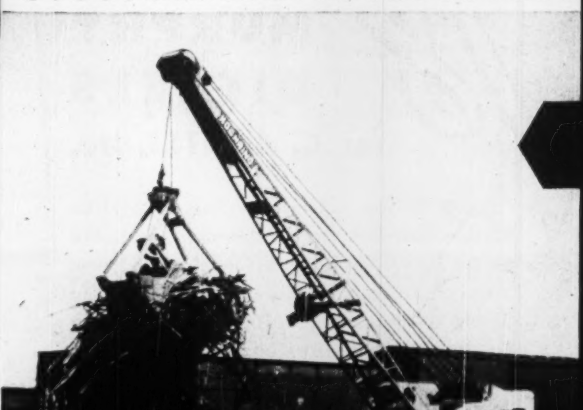
**MURPHY DIESEL COMPANY**
**5311 W. Burnham St., Milwaukee 14, Wisconsin**

# Check KOEHRING 205 for top

## Full-revolving fairlead
## KEEPS CABLE COSTS LOW

In dragline service, Koehring 205 is easy on cable. Full-revolving fairlead maintains straight drag cable lead, with bucket at any working angle . . . eliminates short reverse bends. Result: longer cable life . . . more work-time.



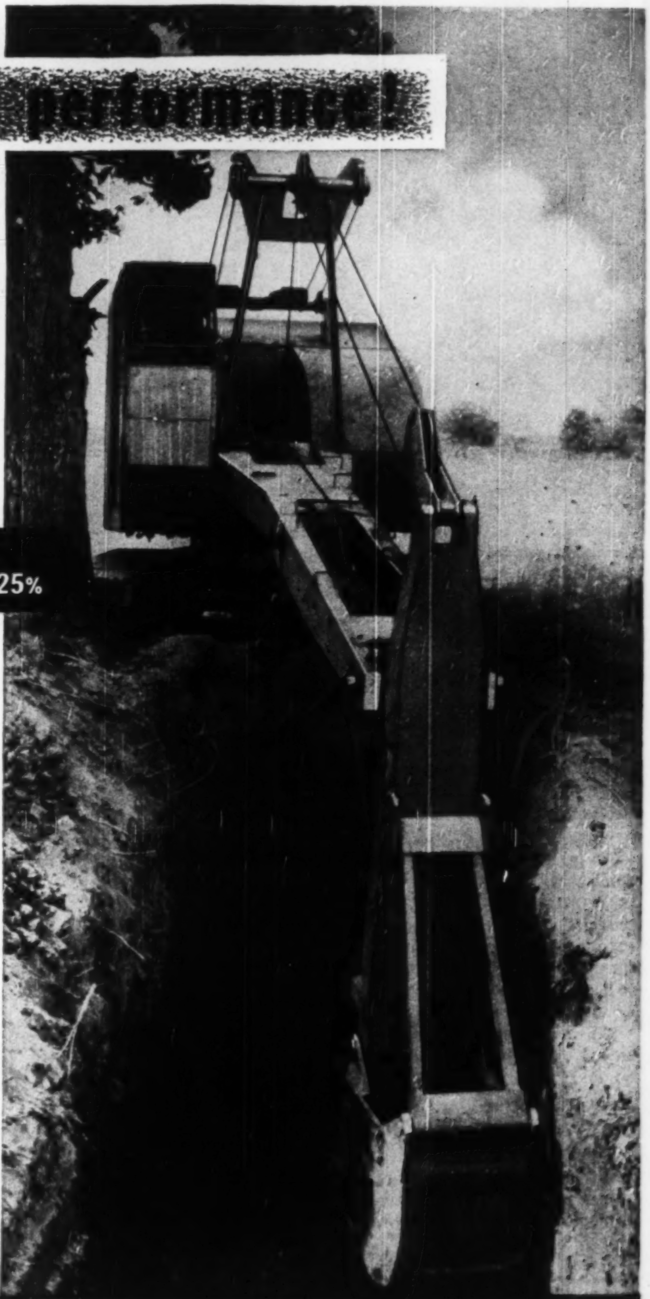


KOEHRING HEAVY DUTY

**KOEHRING COMPANY**
MILWAUKEE 10, WIS.

Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

# ½ yard performance!



## Independent traction Increases OUTPUT UP TO 50%

With Koehring heavy-duty ½-yard excavator, you get 2-speed traction that is independent of all other operations. Separate lever controls each crawler. 205 travels, swings, hoists, raises or lowers boom all at the same time. Whenever you move frequently, or change boom angles to change reach, this quick maneuverability steps up production as much as 50%.

## Dual-purpose boom CUTS SHOVEL-PULL SHOVEL COSTS 25%

Rigid, heavy-duty 205 boom handles either ½-yard shovel or pull-shovel dipper. No need to change booms for either attachment. This Koehring feature costs 20 to 25% less than conventional units that require two separate booms. Crowd and retract cable is self-contained in boom. This saves more time and money every time you convert to dragline or clamshell crane.

## Self-adjusting clutches ELIMINATE MANUAL SETTINGS

There's no time-out for continuous manual clutch adjustments . . . no "compromise" settings. Heat compensator springs on the 205's main drum, swing and traction clutches make all tension changes automatically . . . maintain full clutch efficiency at all times. Means bigger daily output . . . is particularly important on clamshell work where you have intermittent usage.

There are many more Koehring "plus" values that can increase daily production and lower costs on your work. It will pay you to get *all* the facts on this crawler or rubber-mounted ½-yd. 205. Other Koehring sizes: ¾-yd. 304, 1½-yd. 605, and 2½-yd. 1005.

K916

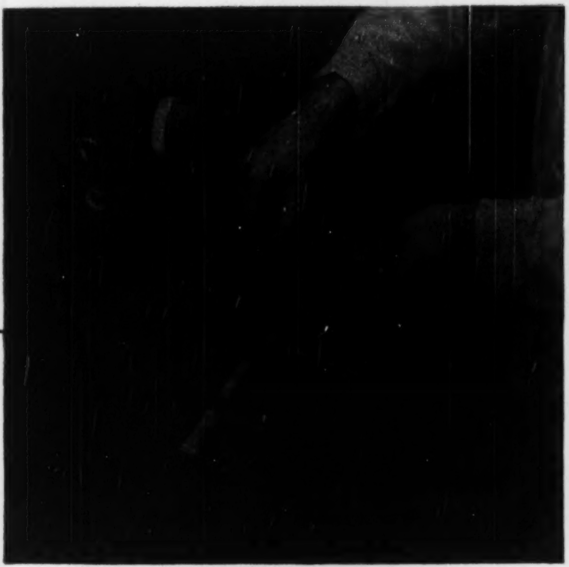
SEE YOUR KOEHRING DISTRIBUTOR [illegible]

**To: KOEHRING COMPANY, Dept. R, Milwaukee 10, Wisconsin**

NAME .................................................. TITLE ....................
COMPANY ..................................................
STREET ..................................................
CITY .................................................. STATE ....................

☐ ½ yd. 205
☐ ¾ yd. 304
☐ 1½ yd. 605
☐ 2½ yd. 1005

# Cancelling "Holidays" in a COATING'S CALENDAR



Look closely at the picture above, and you'll see a spark jumping from the metal test panel to the electrode in the technician's left hand.

That means the coating on the panel is not in a continuous film or is broken . . . protection thereby is not complete. We sav the coating has a "holiday" in it.

Sometimes these "holidays" aren't visible to the naked eye. So Flintkote researchers use this method of testing electrically to be *certain* that the coatings tested meet the conditions for which they were formulated. When the tell-tale spark appears . . . back the coating goes for further development until it passes every test with flying colors.

And this is only one of literally hundreds of painstaking tests that Flintkote researchers make on every product. Housed in one of the most modern, efficiently equipped buildings in the industry, the staff of this new research laboratory sets the pace for Flintkote plants from coast to coast . . . to assure better products and better results consistent with lowest possible costs.

Whether your problem is one of coatings for sound deadening, protection from water or weather, fume resistance or acid corrosion . . . adhesives or floorings . . . see what we have now and can offer you for the future.

**THE FLINTKOTE COMPANY**
*Industrial Products Division*
**30 Rockefeller Plaza, New York 20, N.Y.**

**FLINTKOTE**
*Products for Industry*

Atlanta • Boston • Chicago Heights
Detroit • Los Angeles • New Orleans
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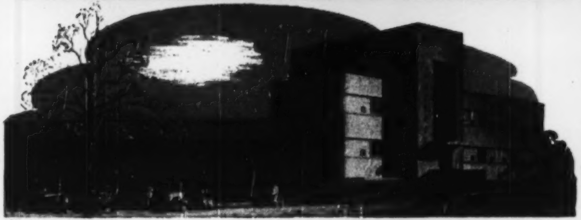
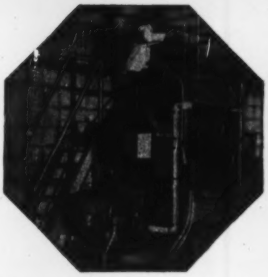
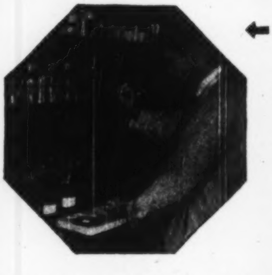


↑ One or more of 24 separate laboratories constantly evaluate Flintkote products step by step from raw materials to field performance, from initial development to mass production. Both Company and Customers profit by this *insurance from research.*

This "pilot scale" ribbon type mixer ➡ enables the laboratory to reproduce production conditions quickly and accurately for research and testing of a variety of asphalt mastics.

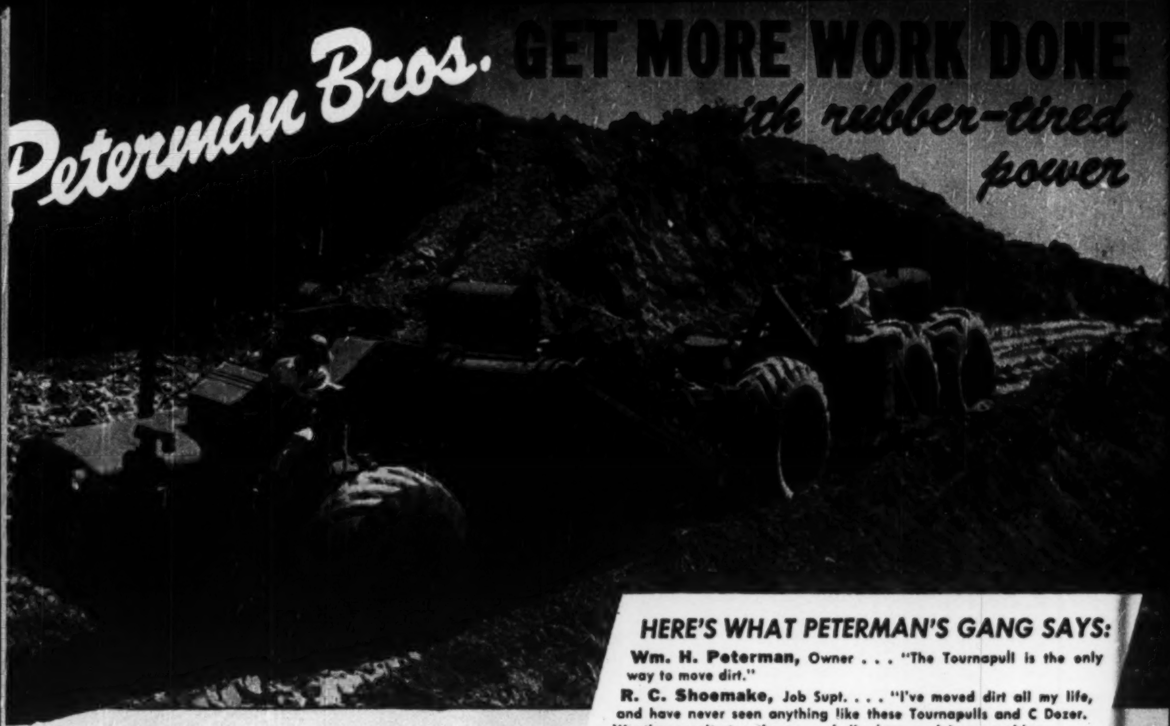




⬅ Scientific equipment in use here permits complete analyses when only minute quantities, sometimes no larger than a pinhead, are available. Techniques like this assure purity, reduce cost, speed operation and increase accuracy in the Flintkote Laboratories.

This small scale rubber mill is used to ➡ break down various rubber materials to just the right consistency for use in new products or processes. Full size operation follows in the production of versatile fluid rubber and rubber-like adhesives, coatings and sealers.

# *Peterman Bros.* GET MORE WORK DONE *with rubber-tired power*



**HERE'S WHAT PETERMAN'S GANG SAYS:**

**Wm. H. Peterman,** Owner . . . "The Tournapull is the only way to move dirt."

**R. C. Shoemake,** Job Supt. . . . "I've moved dirt all my life, and have never seen anything like these Tournapulls and C Dozer. Weather won't stop them . . . belly-deep mud is no problem . . . they walk right out where tracks bog down."

**S. L. Rogers,** Tournapull Operator . . . "Best dirtmoving team I've ever seen . . . and I've worked with both rubber-tired and crawler outfits."

**Tom Summall,** Tournadozer Operator . . . "This Dozer is a real pusher, clearing and dirtmoving tool . . . beats a crawler."

**J. Washington,** Maintenance . . . "Easiest machines I've ever worked on in my 15 years of experience."

## . . . handle stripping and road jobs with fast TOURNAPULL-TOURNADOZER team . . .

***Peterman Bros.,*** Yazoo, Mississippi contractors, equipped for year-around profits with 2 electric-control C Tournapulls and a high-speed, rubber-tired Tournadozer. They alternate road work with stripping jobs . . . have found that their high-traction rigs can keep working and earning in all kinds of weather. In fact, Job Supt. R. C. Shoemake reports that on road work, their Tournapulls keep going in wet weather until highway engineers halt hauling and spreading on the fill. In winter, they switch to gravel stripping jobs to maintain consistent earnings the year around.

### Here's strip pit performance:

On 65,000 yards of overburden removal at a Crenshaw, Miss., gravel pit, Peterman's 2 C Tournapulls turned in the following performance. Working under normal "shut-down" weather conditions, each "C" delivered a load every 5 minutes on 650 to 750′ hauls. Dump area and haul roads were constantly soft and spongy. 250′ of travel was up 12% grade, and 300′ was over wet fill, often hub-deep.

As haul and dump conditions cleared up, Supt. Shoemake reports the Tournapulls stepped rate of production way up. With high-speed Tournadozer for pusher, each Tournapull loaded 10 pay yards of damp clay loam in an average of ½ minute . . . and, according to job records, delivered a load every 2½ to 3 minutes on longer 1500′ hauls . . . kept up the fast cycles because, with excellent haul roads, they were able to run the whole trip in 4th gear.

### Drive job-to-job

Peterman Bros. drove their machines 143 miles from Yazoo City to the Crenshaw pit in 10 hours road time. That's another important advantage with rubber-tired Tournapulls and Tournadozers. Their high speed on rubber not only gets more work done under all job conditions . . . it also cuts travel time and costs, gets this equipment onto the next job faster.

Let your local LeTourneau Distributor show you how high-speed, electric-control Tournapulls and Tournadozers can earn more profits *for you* all year around. Call him TODAY!

Tournapull, Tournadozer—Trademark Reg. U.S. Pat. Off. C122-b

**LETOURNEAU** PEORIA, ILLINOIS JOB-PROVED Over 6300 Built and Shipped **TOURNAPULLS**

**MORE YARDS PER HOUR WITH RUBBER-TIRED POWER**

# SHOCK STRENGTH

Without shock strength—or, for that matter—without all of the strength factors listed opposite—no pipe laid 100 years ago in *city streets* would be in service today. But, in spite of the evolution of traffic from horse-drawn vehicles to heavy trucks and buses—and today's vast complexity of subway and underground utility services—cast iron gas and water mains, laid over a century ago, are serving in the streets of more than 30 cities in the United States and Canada. Such service records prove that cast iron pipe combines all the strength factors of long life with ample margins of safety. No pipe that is provably deficient in any of these strength factors should ever be laid in city streets. Cast Iron Pipe Research Association, Thos. F. Wolfe, Engineer, 122 So. Michigan Ave., Chicago 3.

# CAST IRON PIPE

# Strength factors of Long Life !

***No pipe that is provably deficient in any of these strength factors should ever be laid in city streets***

## SHOCK STRENGTH

**The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.**

## CRUSHING STRENGTH

**The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.**

## BEAM STRENGTH

**When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.**

## BURSTING STRENGTH

**In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.**

CAST IRON

# SERVES FOR CENTURIES

Relieving platform, which supports New York's East River Drive, rests on 72,000 creosoted piles. Wood form, pictured here, carries reinforced concrete slab.

72,000

CREOSOTED PILES SUPPORT

NEW YORK'S EAST RIVER DRIVE!

New York's East River Drive, completed in 1942, is one of the city's most impressive waterfront parkways. This Drive is about 7 miles long; in six lanes, it carries two-way high-speed traffic. For a distance of 4.3 miles, relieving platform bulkheads were built along the shore of the East River to support the highway. These relieving platforms rest on approximately 72,000 creosoted timber piles, driven offshore in water 20 to 30 feet deep.

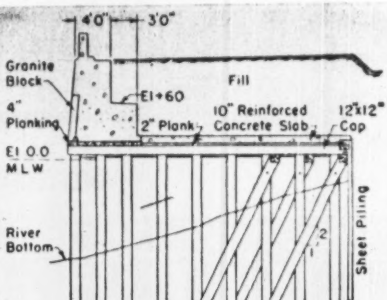
The engineers specified pressure-creosoted piles because of their economy and permanence. These piles are usually lower in cost than other permanent pile materials. The pressure-creosoting treatment protects them against marine borers; also, against decay and insect attack where cutoffs are above the water table.

When your projects require permanent construction *with economy*, Koppers Pressure-Creosoted Piles may be the best answer. Koppers Piles can be delivered on schedule, in lengths up to 130 feet. Write for quotations.

KOPPERS COMPANY, INC., PITTSBURGH 19, PA.

KOPPERS PRESSURE-TREATED WOOD

As reported in an article in Civil Engineering, April 1949, "Design is based on assumption that creosoted piles used will outlast other materials in structure."



(Continued from page 4)

formed in 1949, valued at $4,800,000, cost 20 percent more than estimates. On 19 contracts, for $1,377,000, costs were 19 percent below estimates.

**Gone are the Days**—Canada has junked its priority controls over certain steel items, including plates, stainless sheets and bars, but it will retain control over imports of manufactured steel products. Primary steel and timber were decontrolled almost a year ago.

**The Slow, Easy Life**—Alabama police have located a $25,000 steel bridge stolen off its foundation some time back. It was in junk yards, had yielded $149 as scrap. The bridge, which served an isolated area, disappeared several weeks before anyone bothered to tell the cops.

**There IS a Law**—Wisconsin's Society of Professional Engineers says 38 persons or firms were found to be practicing engineering in violation of state law last year. Five were qualified but not registered. The remainder agreed to cease advertising and practicing. Another 22 cases are being investigated.

**Too Small for Texas**—Houston's first skyscraper, all six stories of it, is to be razed for a new and larger building—a two-story and basement commercial structure. It's hoped that 10 more stories will be added within a year, and the plans call for three more later.

**Inflation Note**—Boston's Mayor Hynes has revived 15-year old plans for a new city hall. They were laid aside in 1937, when the estimated cost was $1,500,00, as being entirely too expensive. Estimated cost today is $10,000,000.

**Fight Coming Up**—Directors of Missouri's Citizens Road Association have endorsed Gov. Forrest Smith's proposal to double the two-cent gasoline tax. The proposal, in dispute for a year, will be voted on April 4. Recently, Missouri's Highway Commission endorsed the plan, also. Dispute rages over whether the funds reserved for rural roads will be spent properly by county officials or whether they'll be wasted.

**No Time's A'Wastin'**—Those Texas capitalists who decided to build their own toll road between Houston and Dallas have signed engineering contracts with J. E. Griner Co., Houston and Baltimore consultants. Work is to begin within four months on the 220-mi road which will cut 30 mi off the distance between the two major cities.

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CUMMINS DIESEL

SINCE 1918...PIONEER OF PROFITABLE POWER
THROUGH HIGH SPEED DIESELS

# Here's what you get with Cummins Diesels

Here are four more honest-to-goodness examples of how owners have saved money—and made money—with Cummins Diesel Engines:

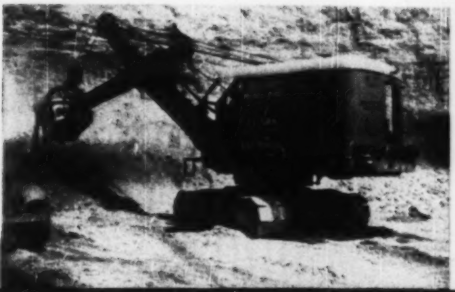
*Service* One of the more than 200 Cummins Dealers is as close as your phone.

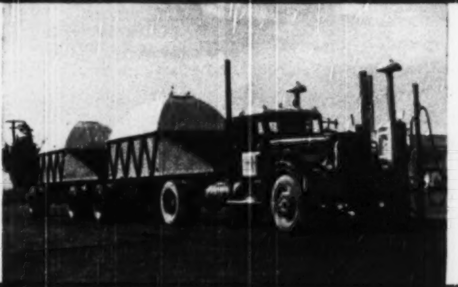
***Highspeed Diesel Engines (50-550 hp) for:***
On-highway trucks • off-highway trucks • buses • tractors • earth-movers • shovels • cranes • industrial locomotives • air compressors • logging yarders and loaders • drilling rigs • centrifugal pumps • generator sets and power units • work boats and pleasure craft.

CUMMINS ENGINE COMPANY

## LESS FUEL

A Model 710 Osgood shovel equipped with a 1¼-yard bucket and powered with a 150 hp *Cummins Diesel* uses approximately *14 gallons of Diesel fuel* in eight hours. A comparable unit powered with a *gasoline engine* working on the same job uses *45 to 50 gallons* of fuel a shift. This fuel economy report comes from Clarke Certified Concrete Company, Inc., Baltimore, Md.



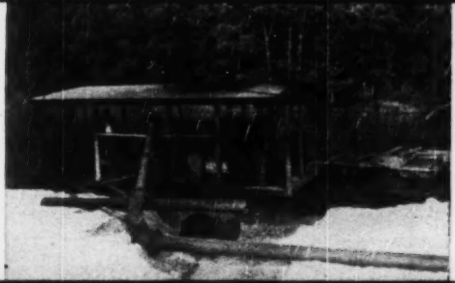


## LESS MAINTENANCE

Permanente Cement Company, Permanente, Calif., standardizes on Cummins Diesels because of their performance and economy. This leader in the cement industry uses 18 Cummins Diesels to power Peterbilt and Sterling tractors pulling flat bed trailers on line-haul work . . . also operates two Cummins-Powered Diesel-electric locomotives. L. M. Minich, Equipment Superintendent, says: "We're sticking to Cummins Diesels and Cummins parts and getting trouble-free transportation."

## LONGER LIFE

*For 15 years* a 150 hp Cummins Diesel powering a six-inch Durant pump on a dredge worked eight hours a day . . . *with only two overhauls.* G. L. Anderson, owner of Anderson Gravel Company, Amite, La., says: "I wouldn't have any other power. That 15-year-old Cummins Diesel gives me such good service that when I started using a second dredge, *I bought another one just like it.*"



## MORE WORK

Production of crushed stone and agricultural lime averages *1,200 to 1,500 tons an eight-hour day* in the Mulzer Brothers' quarry near Eckerty, Ind. For reasons of economy and increased production, Mulzer Brothers *standardize on Cummins Power.* A supercharged HRIS-600 Cummins Diesel powers a No. 2540 Austin-Western crusher and feeder; two LP-600 engines each power a No. 28 Gilson pulverizer; and a fourth Cummins Diesel powers a Type No. 604 Lima shovel.

**These typical examples of the profit-making power furnished by Cummins *Dependable* Diesels explain why men who pay the most attention to cost sheets and profit and loss statements choose Cummins Power. Write for further proof that Cummins Diesels can save and make *more* money for you.**

*Cost Conscious?* **CHOOSE CUMMINS DIESELS**

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**EXPORT: CUMMINS DIESEL EXPORT CORPORATION • COLUMBUS, INDIANA, U.S.A. • CABLE: CUMDIEX**

# Reduce operating costs for lower bids ...

Low bids are mighty important as long as you retain enough profit. Many experienced contractors have found they can accomplish both by taking advantage of the savings made possible with Armco Corrugated Metal Structures.

Figured on an *installed* basis, Armco Structures save time, labor and money in many ways. They often weigh only one-tenth as much as more massive types, yet are amply strong for the purpose. This means low handling and hauling costs. Job costs go down because unskilled labor quickly makes the installation.

Standard Armco Pipe and PIPE-ARCH are supplied in any length that can be hauled or handled, while larger MULTI-PLATE Pipe, Arches or PIPE-ARCH are shipped knocked-down. No large and expensive equipment is needed for installation. A few men with a rope sling or an A-frame can handle the largest structure.

Assembly is made with simple band couplers, or by bolting prefabricated sections together. No hand excavation is required—no delay for formwork or curing and no backtracking to finish the job. Backfilling is done directly against the metal and traffic rolls immediately.

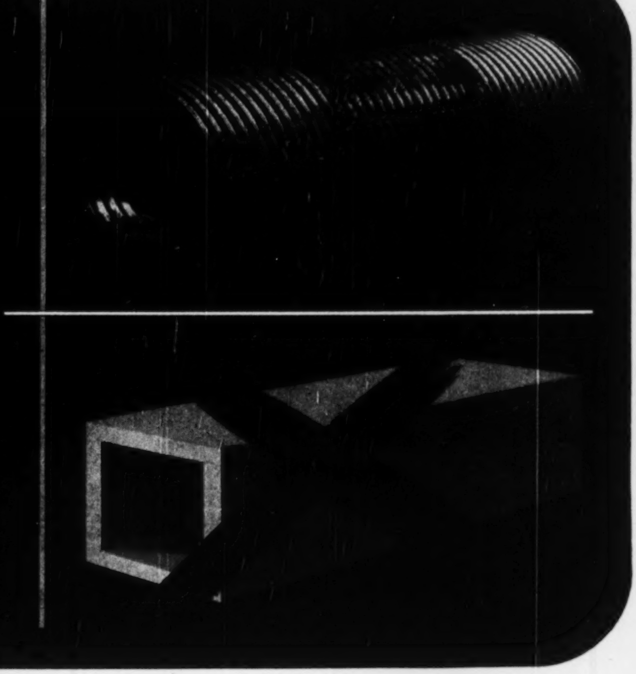
Bid low with good profit by figuring that next job with an Armco Corrugated Metal Structure. All are ideal for highway, railway, airport and municipal installations. Write for complete data. Armco Drainage & Metal Products, Inc., 3330 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.

*Export: The Armco International Corporation*

**ARMCO DRAINAGE STRUCTURES** ARMCO

## Bids 26% lower

Experienced contractors figure the time, labor, and money-saving advantages of Armco Corrugated Metal Structures into their bids. On drainage work for a southern highway the winning contractor was able to bid 26% lower for Armco MULTI-PLATE PIPE-ARCH than competing bids for a monolithic box structure.



# THE CONSTRUCTION WEEK

**WHITTINGTON'S SUCCESSOR?**—Construction men who do business with the federal government will be watching to determine whether Rep. Will Whittington, Mississippi Democrat, holds to his announced decision not to run again for Congress. With 26 years in Washington behind him, Whittington has long been a symbol of Army Engineer influence in the lower house, and he has a long record of support for federal highway aid, also. He's been head of the Public Works Committee and its predecessor groups for years. Likely successor, if Congress stays Democratic next fall: Charles A. Buckley, of New York; if it goes Republican: George A. Dondero, Mich.

**TURNABOUT**—Cracker-barrel discussion in St. Louis continues to center on how much the city is going to charge East St. Louis, Ill., taxwise, for the part of the new East St. Louis toll bridge that extends into Missouri. The extension is considerable, since the state line is near the Illinois side of the Mississippi River. For years, St. Louisans have reluctantly paid taxes to East St. Louis on the eastern approach to the Municipal Bridge. Now, the chance to turn the tables looks too good to be missed. East St. Louis went into the toll bridge venture after noting that its neighbor—Madison, Ill.—acquired a gold mine by purchase of the private Chain of Rocks toll bridge. But Missouri taxes may make East St. Louis' "strike" assay a little less fine.

**SCIENCE FOUNDATION** — Although nobody seems to object very much or very strongly, the proposal for a national Science Foundation doesn't appear to be making much progress through Congress. A bill to establish the foundation passed the Senate last session, but was sidetracked by the House Rules Committee, and never got to the House floor. Mr. Truman now has asked a definite appropriation for such a foundation—and proponents think this might push the measure through. The Foundation would be used "to stimulate basic research and assure an effective balance among the federal research programs and private investigations."

**WATER AT WHOLESALE**—A state-sponsored authority that would act as a wholesaler of water supply to communities and industry is now before the New York State legislature. As proposed, the authority would tap Lake Erie, and construct a series of reservoirs in the western part of the state. Spur is an area wide water shortage, hitting the cities of Rochester, Batavia, and Lockport.

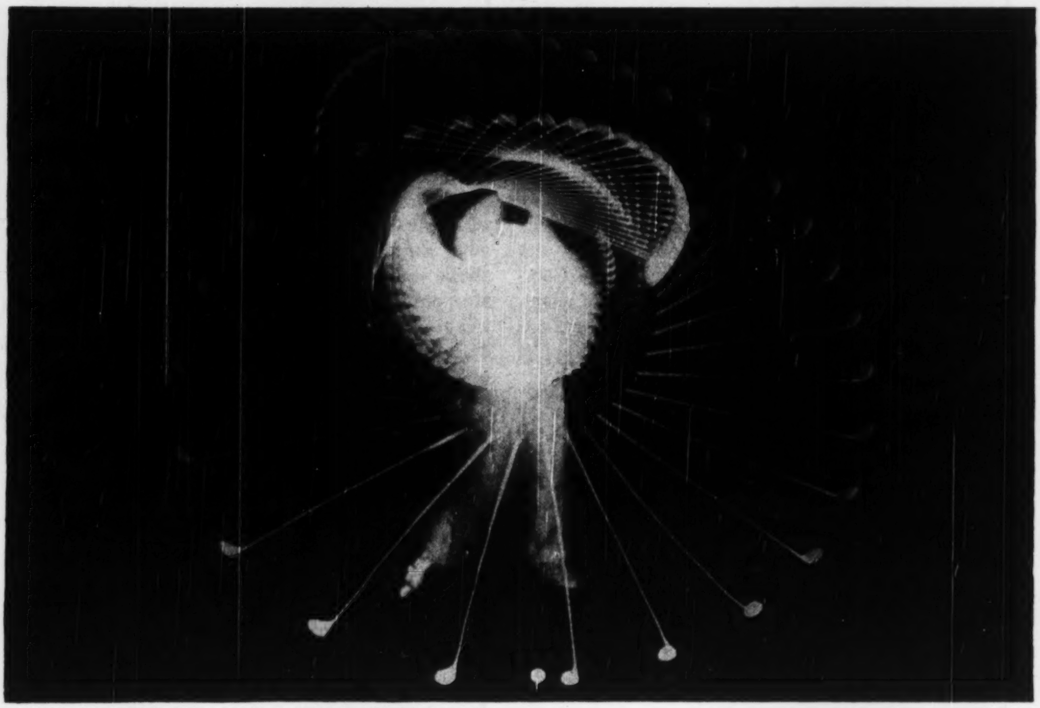
**BUSINESS HORIZON CLOUDY?**—Government men are keeping their fingers crossed about the business outlook in the second half of the coming year. Not much has been said in public, but the uncertainty is beginning to influence Congress' attitude on higher taxes, and in pressure for more liberal loans to business. Steel is an example of what causes government's concern: Output is high now, but fear is that it will slip after last fall's strike losses are made up. Downtrends in foreign aid, prospects of drop in auto production, contribute to the uneasiness. Nobody thinks there'll be a sharp, sudden slide. But many look for a halt in the up-turn.

**OVERTIME FOR FLOOD WATCHERS**—Lights burn late, and Saturday and Sunday are work days in the offices of the Corps of Engineers' Upper Mississippi River Division at St. Louis. River stages are teletyped to Vicksburg where a mechanical analyzer translates them into discharge and then into future stages at Cairo. There are no flood stages in the upper river—but a few inches of extra water at Winona or Keokuk might be just enough to turn the battle with the swollen Ohio at Cairo. Cold weather is an ally—it halted plans for blasting the New Madrid Floodway recently—but the watch stays constant.

**TUTTLE CREEK DAM AGAIN**—Faint glows of hope—nurtured by wishful thinking—can be discerned in Kansas City when Tuttle Creek Dam is mentioned these days. Key structure in the city's flood protection plan (devised by Army Engineers) the dam would be sited 100 miles west, on Kansas' Blue River, to store waters that now flow unchecked into the Kaw River and disgorge in Kansas City's front yard. The new hopes stem from the appointment of Senator Harry Darby to fill the vacancy created by the death of Senator Clyde Reed—who was an effective opponent of the Tuttle Creek project. Darby is a Kansas City resident, Reed came from the southeastern part of the state.

**ECONOMY—BUT NOT MUCH**—Buck passing on economy is going to show up in Congress shortly. House is going to vote some deep cuts in the President's budget—but observers think it'll be a tongue-in-cheek gesture, with the expectation that the Senate will restore the cuts, in large measure. Reasoning is simple enough: Only a third of the Senate is up for reelection (all of the House is); thus Senators are under less pressure from home to make an economy showing.

There's a **PATTERN OF PERFECTION** in Chlorination too



**High-Speed** photograph Courtesy of A. G. Spalding & Bros., Inc.

The champion's swing is a pattern of perfection, born of experience, practice and skill. The pattern of perfection in chlorination—proven ability to effectively solve chlorination's multitudinous problems—stems from the same background. W&T brings such a background to your job.

Whether you need chlorination for a drinking water supply, sewage treatment, a swimming pool or for industrial process and cooling water, you'll find that when you demand W&T equipment, you'll have all the ingredients for perfection—

EXPERIENCE gained through 35 years of research, development and pioneering—

PRACTICE based on making thousands of installations to meet a host of different problems—

SKILL inherent in a precision conscious factory and an able, alert field staff.

Call for the PATTERN OF PERFECTION on your next chlorination job—it's as close as your W&T Representative.

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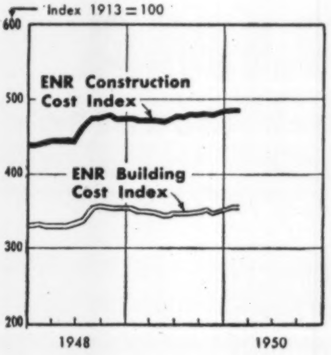
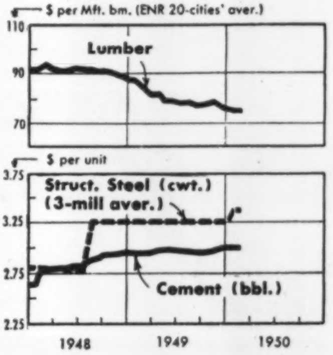
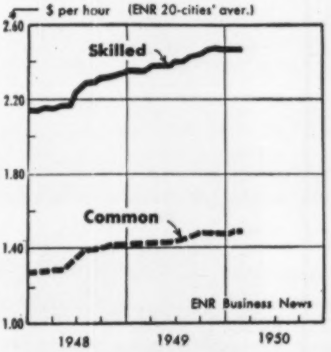
S-46

# FEBRUARY CONSTRUCTION BUSINESS REPORT





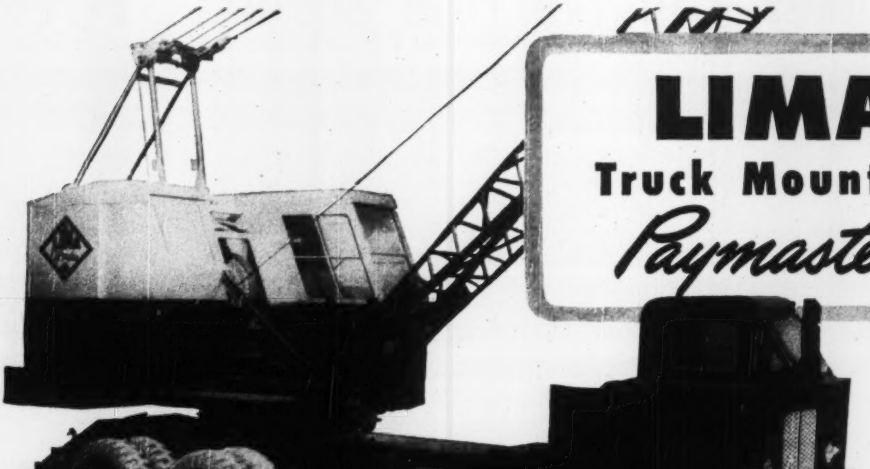


| ENR INDEXES (1913 = 100) | Feb. '50 | Feb. '50 | % Change | Feb. '49 | % Change |
|---|---|---|---|---|---|
| Construction Cost | 484.85 | 484.74 | 0.0 | 475.37 | +1.9 |
| Building Cost | 356.48 | 356.23♯ | +0.07 | 352.94 | +1.0 |
| **MATERIAL PRICES (20-cities' average)** | | | | | |
| Cement, bulk, per bbl | 2.955 | 2.955 | 0.0 | 2.970 | −0.5 |
| Structural Steel, (3-mill aver.), per cwt | 3.400 | 3.400 | 0.0 | 3.250 | +4.6 |
| Sand, per ton | 1.963 | 1.962 | 0.0 | 2.010 | −2.3 |
| Lumber, 2x4 Fir, per M ft. bm | 84.441 | 84.111 | +0.3 | 92.160 | −8.3 |
| Lumber, 2x4 Pine, M ft. bm | 74.650 | 74.683 | −0.04 | 80.930 | −7.7 |
| Common brick, per M | 27.906 | 27.856 | +0.1 | 27.438 | +1.7 |
| Ready-mixed concrete, per c. y. | 10.397 | 10.403 | −0.05 | 10.250 | +1.4 |
| Structural Clay Tile, 3x12x12 Per M | 132.867 | 132.867 | 0.0 | 130.658 | +1.6 |
| **WAGE RATES (20-cities' average)** | | | | | |
| Common | 1.485 | 1.485 | 0.0 | 1.417 | +4.8 |
| Skilled (aver. 3 trades) | 2.466 | 2.462 | +0.08 | 2.353 | +4.8 |
| Bricklayers | 2.721 | 2.721 | 0.0 | 2.560 | +6.2 |
| Structural Ironworkers | 2.436 | 2.426 | 0.0 | 2.339 | +4.1 |
| Carpenters | 2.242 | 2.242 | 0.0 | 2.186 | +2.5 |

| | January | | | Twelve Months | | |
|---|---|---|---|---|---|---|
| | 1950 | 1949 | % Change† | 1949 (52-weeks) | 1948 (53-weeks) | % Change† |
| **CONTRACTS AWARDED (thous.)** | | | | | | |
| Total U. S. (ENR reported) | $915,475 | $565,826 | + 62 | $8,157,403 | $7,219,387 | +15 |
| Private | 428,051 | 229,814 | + 86 | 3,862,238 | 3,581,444 | +10 |
| Public | 487,424 | 336,012 | + 45 | 4,295,165 | 3,637,943 | +20 |
| Federal | 275,584 | 129,897 | +112 | 1,184,745 | 951,229 | +27 |
| ENR Constr. Volume Index, '13 = 100 | 407 | 255 | + 60 | 283 | 254 | +11 |
| **NEW CONSTRUCTION CAPITAL** | | | | | | |
| Total | 297,184 | 359,088 | − 17 | 7,343,747 | 6,786,211 | +10 |
| State & Municipal Bond Sales | 222,484 | 158,815 | + 40 | 3,040,711 | 2,033,502 | +52 |
| Corporate Security Sales | 74,700 | 200,273 | − 63 | 2,169,812 | 2,701,488 | −18 |
| Federal (non-federal work) | ........ | ........ | ........ | 385,000 | 492,289 | −22 |
| Federal (federal work) | ........ | ........ | ........ | 1,748,224 | 1,558,932 | +12 |

| MATERIAL SHIPMENTS & LABOR SUPPLY | December (D) November (N) | | | Twelve Months (12) Eleven Months (11) | | |
|---|---|---|---|---|---|---|
| | 1949 | 1948 | % Change | 1949 | 1948 | % Change |
| Cement, thous. bbls., Bu. of Mines | 17,269(N) | 18,110(N) | − 5 | 194,564(11) | 191,587(11) | + 2 |
| Fabr. Struc. Steel, thous. tons, AISC | 136(D) | 182(D) | −25 | 1,854(12) | 1,994(12) | − 7 |
| Lumber, mil. ft. bm., NLMA | 3,209(N) | 2,654(N) | +21 | 28,997(11) | 32,950(11) | −12 |
| Lumber Prod., mil. ft. bm., NLMA | 2,947(N) | 2,929(N) | + 0.6 | 29,031(11) | 34,294(11) | −15 |
| Contract Const. Employ., thous. BLS | 2,135*(D) | 2,199(D) | − 2.9 | Av. 2,161(12) | Av. 2,165(12) | − 0.1 |

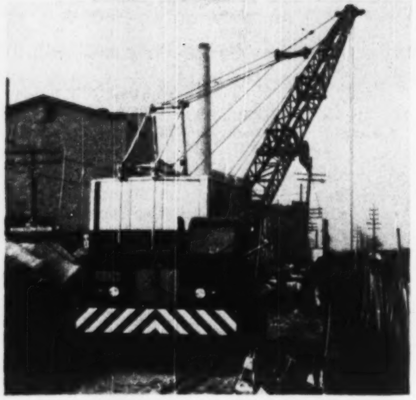
† Computed on weekly average basis. * Preliminary. ♯ Revised.



# LIMA
## Truck Mounted *Paymaster*

**LIMA TYPE 34T**

## gives you the winning combination
## Mobility *plus* Performance *plus* Stamina



LIMA Truck-Mounted "Paymaster" that pays extra dividends because it can travel between jobs *on its own power*—at automotive speeds Type 34-T is a convertible shovel, crane, dragline or pull shovel, mounted on a standard 10-wheel truck crane carrier with independent engine for travel It has a crane capacity of 20 tons (35 ft boom, 10 ft. radius) and shovel capacity of ¾ or 1 yd., with outriggers extended. It can travel up to 31 M. P. H. Rotating equipment duplicates that of the famous crawler mounted "Paymaster", with alterations adapting it to truck mounting—thus assuring the same high peak, continuous performance which has made the "Paymaster" the leader in its field.

### "Wheel-Mounted" units also available

You can now also get the LIMA "Paymaster" and the LIMA Type 604 (35 ton crane) in a single engine wheel mounted unit. Crawler Mounted LIMA machines are available in Shovel capacities from ¾ to 6 yards, Cranes to 110 tons and Draglines variable.

It will pay you to consult your nearest LIMA Sales Office or Representative before you buy your next shovel, crane or dragline. Offices in principal cities of the world.

## Lima Shovel and Crane Division

LIMA, OHIO

**OTHER DIVISIONS:** *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

LIMA HAMILTON CORPORATION

# EDITORIALS

## Road Needs Pile Up

CORRECTING existing deficiencies in our highway system will require the expenditure of $41 billion, according to a report just submitted to Congress by the Joint Committee on the Economic Report. The committee's estimate is based on figures submitted to it by state highway departments, which total to $36-billion, and the committee has added $5-billion to cover states from which it has not received complete estimates of needs.

Study of the state-by-state tabulation of needs that accompanied the report (ENR Feb. 2, p 28) indicates that the state highway departments used quite different methods of computation. Not a few apparently started out from an assumption that most of their highways should be entirely rebuilt. The unbelievably high figures for such states are in sharp contrast to the figures for states known to have made detailed studies of their needs, as reported some months ago by the Automotive Safety Foundation. All of which leads to the conclusion that the total figure can be scaled down considerably.

However, the committee's report serves this useful purpose: Coming at a time when Congress must soon take up highway-aid legislation for the next few fiscal years, it should impress the members with the need for being certain that the program it authorizes will be large enough. It is essential to gain on the deficiencies.

## Pollution in Wells

CAREFUL INVESTIGATION of a recent rumor—that a cattle-farming family in Pennsylvania has contracted typhoid fever from a polluted deep well—turned up facts proving it to be unfounded. Although the rumor proved false, the search pointed up the growing hazard to public health from indiscriminate disposal of wastes from individual homes. Underground waters are progressively becoming more polluted with the passage of time and expanding suburban population. And the problem is being aggravated by the careless practices of some well drillers. In areas with underlying limestone, drilling of wells to relieve clogged cesspools or discharge of dynamite at the bottom of new installations to open up crevices in the strata are short-circuit cheap solutions that threaten public health.

Because state health departments cannot police individual-household sewage systems, engineers and public officials must take the lead in condemning such irresponsible practices. They should point out—whenever the occasion arises—that careless discharge of untreated wastes to underground waters may cause typhoid outbreaks or less serious diseases. Where suburban developments—without public water and sewerage systems—are growing rapidly, the profession's responsibility for underscoring dangers from polluted wells is great. A good place to start is with the reporters on local newspapers. With proper instruction and encouragement, they can alert the public to this danger.

## Water Policy Opportunity

WITHIN THE NEXT FEW WEEKS a considerable number of engineers, expert in water development and use, will be asked to serve on task committees charged with formulating the various necessary elements of a national water policy. Only the most compelling reasons should cause anyone to decline to serve. The opportunity to tackle a problem of such broad national importance is rare. The responsibility of engineers to give of their special knowledge and judgment is here as great as on any question of modern times. Our water resources are precious to the point of controlling the degree and direction of our national growth, and we are presently developing them in a hit-or-miss manner that borders on the irresponsible.

The opportunity for the engineering profession to make its views known on the essentials of a sound national water policy arises from the decision of Engineers Joint Council, cooperative body of the five national engineering societies, to foster such a program. It is given paramount and urgent importance by the recent appointment by the President of a Temporary Water Resources Commission to report on national policy before the end of the year.

The seven-man commission contains only two engineers. Since the engineering aspects of water resource development are predominant, the commission will need and should welcome the best and broadest engineering judgment that is available. It is such judgment that these EJC task committees can provide.

The problem of formulating a national water policy is not an easy one. Yet it must be faced in order to define the areas of jurisdiction of various governmental bodies, to set relative values on various water uses and to provide principles governing technical, economic and social justification and development procedures. Congress needs this information if it is to legislate wisely.

A national water policy will not, of course, solve the problem of water resource development. It is a basic, first step to orderly attack on the problem. Next must come an equally orderly arrangement on the administrative level to remove conflicts between the states and the federal government and between federal agencies and departments. And finally, there will be the operation for which all of this policy and organization is set up—the selection, design and construction of specific water development projects.

The opportunity to help set the wheels in motion on the right track is offered these task committees. It should not be missed.

# THE BUTLER SALES MANAGER EXPLODES:

# "HOW COME! WE GOT ONLY 10 OUT OF 12?"

"Listen you! I'll repeat it! How come we got only 10 out of 12 of the Batching Plants on that big Detroit-Wayne Major Airport job?

**Butler Salesman:** "Well, ah—you see—ah—

**Butler Salesmanager:** "Yeah! I see alright . . . Where were you when those two other plants were bought? Playing marbles, maybe?

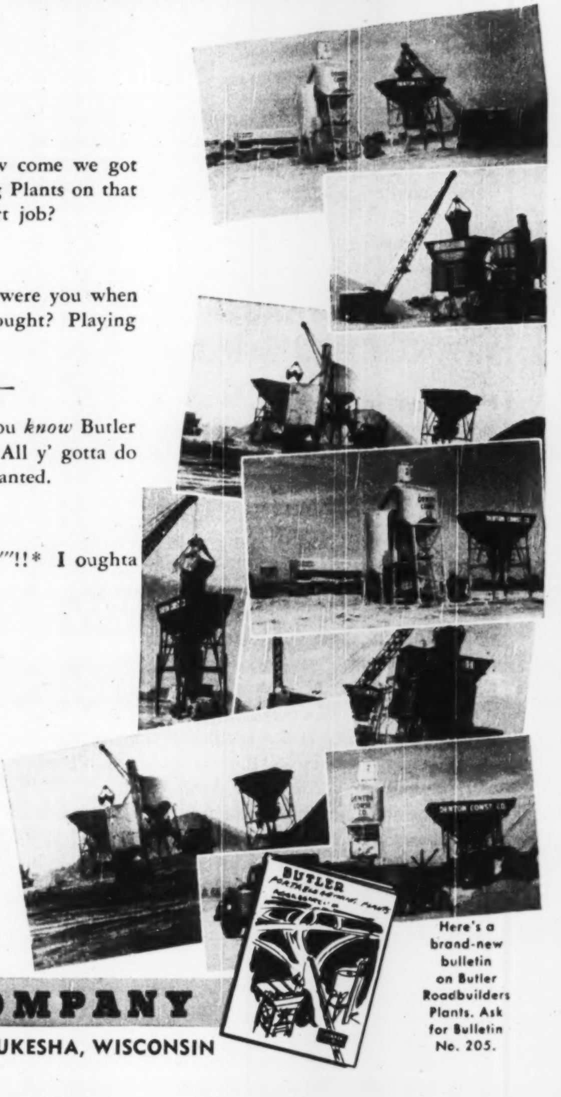
**Butler Salesman:** "Oh, no sir. You,—well, I mean—

**Butler Salesmanager:** "Shut up! I'll do the talking. You *know* Butler Batching Plants sell themselves. All y' gotta do is just be there to know what's wanted.

**Butler Salesman:** "Yessir. I—ah—well,—

**Butler Salesmanager:** "Only 10 out of 12! —?%$*#""!!* I oughta shoot myself!

*Yes, it's true alright. Out of 12 Bulk Cement and Aggregate Batching Plants used by the three-contractor Team that built the Detroit-Wayne Major Airport, only 10 were built by BUTLER. We just don't understand it!*



**Here's a brand-new bulletin on Butler Roadbuilders Plants. Ask for Bulletin No. 205.**

## BUTLER BIN COMPANY

947 BLACKSTONE AVENUE
WAUKESHA, WISCONSIN

# ENGINEERING NEWS-RECORD

FEBRUARY 9, 1950 VOL. 144 NO. 6

## Housing, community facilities periled in many counties

### Population increases without comparable boosts in tax revenues leave suburban counties with deficits—Problem could slow construction if not solved

**Seymour Nagan, Seabrook Hull**
**Washington Staff**

Mass housing and the construction of community facilities is encountering a problem which may slow down construction of each unless a better solution appears than is yet apparent.

It arises from the fact that low-cost housing poses a threat to the solvency of numerous county governments.

The reason: Big suburban projects multiply the number of county residents practically overnight—but they don't raise the taxable property base nearly as much.

This means that if a county tries to keep up the quality of its essential services, increased costs will far outstrip increased revenues.

• **Property tax boost no answer**—Since counties are pretty much restricted to real estate taxes for their spending money, a simple solution would be a sharp jack-up in base rates. But local officials are usually reluctant to tamper with property taxes.

After all, these officials were elected by residents of long standing—people who would get little in exchange for bigger tax bills. In fact, the early settlers may find the sale value of their homes lessened by proximity to lower-quality housing. So it isn't hard to understand why they aren't keen on paying for facilities for newcomers who work in rich industrial counties nearby.

Of course, all this doesn't necessarily add up to a crippling indictment of federally insured low-cost or public housing. But it does create a problem—and the federal government may yet have to step in to solve it.

• **Problem is widespread**—Fairfax County, Virginia, is a case in point—though its problem is no more acute than that of Weber (Ogden) County, Utah; Alameda County, Cal., De Kalb County, Georgia, or Nassau and Suffolk Counties, N. Y., to name a few.

Lying just across the Potomac from Washington, Fairfax County is an ideal location for hundreds of government workers who can't find suitable living space in the Capital. And it is typical of suburban counties in that it has no industry.

Like most other suburban counties, Fairfax spends the bulk of its revenues on its school system. Even with the relatively slow population increase that came with scattered building in the decades before the war, its schools could barely accommodate its children.

• **Bad—and getting worse**—But recent mushroom growth—sparked by federal mortgage insurance on low-cost homes—has made the schools downright inadequate. Right now, classes are being held in school cafeterias and in Quonset huts. And the situation is getting worse all the time.

Here's a dollars-and-cents illustration of why this has to be:

A 90-acre tract of farm land a few miles from the Potomac is now valued at $40,000. Since Fairfax County assesses at something less than one-third real valuation, the property is carried on the tax rolls at about $13,000. The school tax rate is $2.65 per $100: 1949 taxes were $348.

That isn't very much but then the farm has no children on it. As far as the school system is concerned, the $348 is just so much gravy.

• **450 New pupils**—Now a builder is trying to buy it, cut it up into 7,500 square foot lots and put up 300 houses costing $8,000 apiece; the value of the project, thus, will be $2,400,000. Taking one-third of this figure for tax purposes, you get an assessed valuation of $800,000. Annual taxes—at $2.65 per $100: $21,200. That sounds dandy, but it really isn't.

A recent survey shows that children of school age in similar projects in the area average about 1.48 per house. That means that the proposed project would add around 444 children to the county's overtaxed school system.

*(Continued on p. 24)*

**CLOSING DAVIS DAM—Colorado River flows through six diversion openings in the spillway at Davis Dam and re-enters original channel. Openings were closed off with stop logs last month and remaining spillway sections filled with concrete. While this is underway, water will flow through radial gate outlets on each side of the spillway. Reclamation Bureau is building Davis Dam 67 miles below Hoover Dam to service Mexican treaty provisions, produce electric power, and further regulate river flow.**

(*Continued from page 23*)

Schooling for a child in Fairfax County costs $155 a year. For 444 children, the annual bill totes up to $68,820. So even before you get involved in service charges for the bonds it takes to build a school, the county would be in the red every year for $47,620.

- **Other services hit**—You get equally staggering deficits in county public works budgets, too. Sharp increases in population density make existing sewer systems and roads inadequate. Here again, expanded facilities cost more than added revenues will buy.

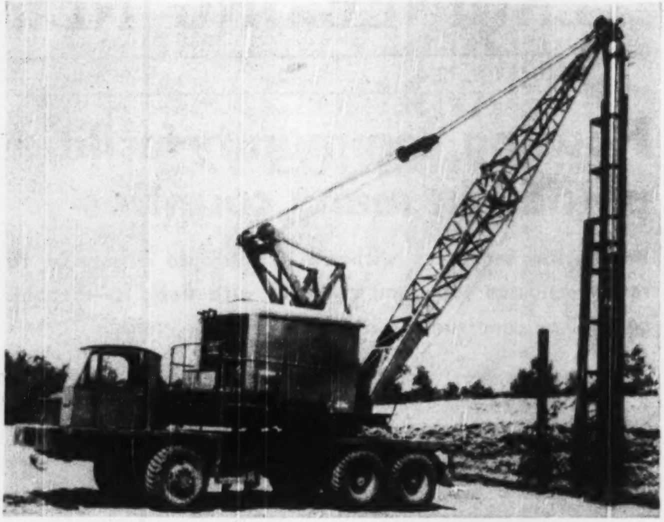
Property owners in Fairfax County—and other counties throughout the nation—are just beginning to wake up to the pickle they are in. They can't do much about deficits induced by low-cost homes already erected within their borders, except increase the tax rate. Power to levy new kinds of taxes would help some, too.

But the big problem the counties are working on is how to keep the deficits from getting any bigger. Best solutions so far worked out:

1. Rezone and require builders to use larger plots; that cuts the number of houses per acre, can make really low-cost homes impossible.
2. Hold up approval of plot plans until builders agree to put in curbs, gutters and wide roadways; county then has to pay less for roads.
3. Change state laws to give county planning commissions final say on what is built; this would let them keep a ratio between low and higher valued properties that could maintain solvency at present tax rates.
4. Get FHA to limit mortgage approvals in any given county of a number that won't produce deficits.
5. Let states require that new developments above a stipulated size provide their own schools and related facilities. This might be effective in larger developments.

- **Opposing local pressures**—None of these will work out too well in practice, though. For one thing, landowners put pressure on the county to let the builders in, so they can sell out at fancy prices. For another, local retailers want the extra trade.

The most promising approach: Get the federal government to make cash settlements with counties—in lieu of taxes—for the U.S. owned property that now goes tax-free. But this plan has its drawbacks. The amount of tax-free federal property will vary between counties, for one thing. For another, it opens up the ticklish subject of tax exemption between federal and local governing bodies.



**MAMMOTH TRUCK CRANE—This 45-ton crane, which the manufacturer (Thew Shovel Co.) claims is the world's largest crane on rubber, is being tested at Fort Belvoir, Va., by the Engineer Research and Development Laboratories. Here rigged as a pile driver, the crane is capable of lifting 45 tons at a redius of 12 ft. with outriggers extended. This capacity can be handled either over the sides or the back of the machine. The horsepower of the turntable engine—a 6-cylinder diesel, at the governed full load of speed of 1,150 rpm is 163.8. Carrier motor, also diesel, is rated at 225 brake hp. at 1,700 rpm. The carrier can move at 18 mph. on smooth, level ground, and has five forward and one reverse speed. Weight is about 144,900 lb. A crane boom up to 100 ft. long can be used.**

## Washington pollution ban opposed by three firms

Washington state pulp and paper mills which have been ordered to install specified waste-control facilities in 18 months (ENR Feb. 2, p. 33) have offered various responses to the order. But only one has indicated that it will comply fully without protest.

Soundview Pulp Co., of Everett, is the one which indicates no protest against the order to install facilities for sulphite waste control by Sept. 1, 1951. Of the others:

1. Crown-Zellerbach asked approval of a plan to discharge its waste away from its mill at Camas and on the bottom of the Columbia River, where the swift flow might dissipate the waste without damage to fish life.
2. The Weyerhaeuser Timber Co.'s Pulp Division disputed the allegation that its new magnesium process is the answer. It stressed operating difficulties, costs and adjustments which must be made. It asked a hearing.
3. Rayonier, Inc., denied it is discharging pollutant, insisted that its Hoquiam plant collects 80 percent of the sulphite waste liquor and impounds it when water conditions are considered dangerous to fish life.

## Ask $36 million bridge in San Francisco area

Supervisors of Marin County, across the Golden Gate Bridge north of San Francisco, last week proposed a new $36,000,000 bridge to the California Toll Bridge Authority.

The proposed bridge would cross San Pablo Bay, north arm of San Francisco Bay, between Marin and Contra Costa Counties.

It's the result of a survey of Earl & Wright, San Francisco consulting engineers. It was financed by Marin County and the city of Richmond following a ferry strike.

The survey found the project could be financed by tolls if completed in 1956, with the intervening time needed for further survey, detailed engineering drawings and completion of construction.

Three possible structures were outlined, varying in length from 10,600 to 19,550 ft, all having a main 1,000-ft cantilever span 185 ft above San Pablo Bay.

The toll bridge authority has been asked to include an item of $200,000 for the necessary further studies of the project in its budget fiscal 1951 request.

# Joint Columbia Basin Development Approved by Truman With Changes

**Program based on agreement reached last year by Engineers and Reclamation Bureau—Basin-wide revenue pooling endorsed**

President Truman last week approved—with some modifications—a joint plan for development of the Columbia River Basin proposed by the Interior Department and the Army. The plan follows the basic principles agreed upon last April by the Bureau of Reclamation and the Army's Corps of Engineers.

The President endorsed the establishment of a "basin account" to permit different accounting for power revenues from various federal hydroelectric plants in the Pacific Northwest and for the various costs which are to be returned from those revenues. His views were given in a letter by Budget Director Frank Pace, addressed to the secretaries of the Army and Interior.

**• Affects pending legislation**—The two secretaries forwarded the letter to the Senate, together with recommendations concerning the Columbia River Basin and other amendments to the omnibus authorization bill for rivers and harbors and flood control, now pending in the Senate.

Proposed basin accounting would pool revenues from all of the power plants to pay the cost of these projects—and also to help pay the irrigation costs of the overall basin development—rather than maintain a separate account for each individual construction unit.

"Such an accounting method," the Budget Bureau pointed out, "is obviously necessary to permit efficient management of the government's power operations in the Columbia Basin and a proper assignment of power revenues to return the costs of irrigation facilities which are beyound the ability of the water users to repay."

**• Pro-CVA move?**—Authorization of the program by Congress will make it more important than ever, the Budget Bureau said, to establish a better organizational framework for the conservation and development of all natural resources in the Pacific Northwest, such as would be provided by the Columbia Valley Administration which the President has previously recommended.

"In the meantime," the letter said, it is obvious that the coordination of their respective programs which has been effected by the Departments of the Interior and the Army is essential. The agreements which they have reached on certain policies concerning the interrelationship of their programs in the Pacific Northwest appear to represent a practicable plan under which the two departments can work together within the shortcomings of the present federal pattern of piecemeal legislation and divided administrative responsibility.

**• No inter-agency friction**—"The President expects that the two departments will continue to operate in conformity with agreements of this general character. However, such agreements, by their very nature, should be considered only as operating agreements, to be changed and brought up to date from time to time. Their form and content should not be frozen by statutory enactment."

In addition, the letter said that the President's program was in accord with the recommendation of Interior Secretary Chapman that the irrigation features in the Grand Prairie area of the Grand Prairie-Bayou Meto development in Arkansas not be authorized for construction by the Corps of Engineers. The Budget Bureau agreed that study commissions for the Arkansas, White and Red River Basins and for the New England river basins, as suggested by Secretary Chapman, would fit the President's program.

Further, the President suggested—according to the letter—that the jurisdiction of the New England Commission be extended "to consider the Passamoquoddy project and to take into account the interrelationships between the development of power in New England and development of power in New York state and internationally along the St. Lawrence River."

**• Few disapprovals**—Of the irrigation projects listed in the Army-Interior agreement of last April, the President endorsed all proposed for construction by the Reclamation Bureau except the irrigation features of the Mountain Home project, which would cost more than $1,000 an acre. He also endorsed most of the flood control and navigation facilities proposed for construction by the Corps of Engineers with the exception of the Snake River navigation channel, harbors on the Snake and Columbia Rivers and some individual features.

All power generating facilities proposed would be in accord with the

TO STOP SETTLEMENT—Steel piles go down 100 ft to rock at Washington, D. C., end of new 14th Street bridge across the Potomac. Needle beams completing new pile bents will pick up main wall and wing walls of U-abutment to prevent any further settling of structure that began after fill for highway approach had superimposed an added load on compressive subsoil strata (ENR Oct. 27, p. 30). When fill was removed to permit underpinning, settled abutment rose ¼-in. Bridge will open to traffic about March 15 instead of Jan. 10, as originally scheduled. (Reni Photo).

President's program, according to Pace's letter, except for the power features of the Garden Valley Dam and the power plant of the Mountain Home project, which are not approved at this time because of their relationship to the irrigation features of the project. The Scriver Creek power developments of the Mountain Home project are approved.

Objection to the irrigation features of the Mountain Home project was made by the President without prejudice to its reconsideration after the report of the President's recently appointed Water Resources Policy Commission has been received.

**• Several allocations rejected**—Allocation of construction costs to pollution abatement, salinity control, recreation and sediment are not approved at the present time except that the handling of certain costs of recreation and sediment control in the manner proposed in an administration amendment to a bill amending the Reclamation law, would be without objection. Reallocations of cost are also approved, subject to limitations set forth in the administration's amendments.

Regarding the establishment of a basin account, the Budget Bureau's letter brought out four points:

"First, the basin account will provide a better method of accounting than is now the case, but it will in no way affect the flow of funds to and from the Treasury. Present law will continue to control the processes of making appropriations for constructing and operating projects and of paying receipts into the Treasury. The basin account, in short, is for accounting but not for funding purposes.

"Second, projects will be included in the basin account only upon specific approval by the Congress.

"Third, the provisions concerning power rates require interest to be charged on the outstanding federal investment in power facilities.

"Fourth, in setting rates for the sale of power, the secretary may consider the application of interest on the power investment, from the various projects covered by the account, to the return of non-power costs, only to the extent that he can do so under reclamation law, existing or as hereafter amended."

**• Commission action awaited**—The question of whether there should or should not be later changes recommended for this aspect of the Reclamation law will be considered by the President's Water Resources Policy Commission.

The President also agreed with Interior's recommendation that the authorization for development of the water resources of Alaska solely by the Corps of Engineers, as presently proposed, should be eliminated.

In the Corps of Engineers' main control plan for the Columbia, the President approved five dams: Libby, Albeni Falls, Priest Rapids, John Day and The Dalles. For the Willamette Basin, he recommended nine more dams and power development at a tenth.

Under the Reclamation Bureau program, he cleared the huge Hell's Canyon project, subject to elimination of $120 million of transmission facilities that would come more appropriately under the Bonneville Power Administration. For the Mountain Home project, Idaho, the letter endorsed the Smiths Ferry and Scriver Creek dams, a connecting tunnel and two power plants on Scriver Creek.

The President asked that the grand total authorization for reclamation projects in the Columbia Basin be limited at this time to $200 million, about half of the eventual total required for the projects he has now approved.

# President Refuses to Approve Change Proposed for Panama Canal Control

### Budget Bureau Report on Reorganization Approved Except for Proposal the Commerce Secretary Supervise the Agency

President Truman last week scotched the rumor that he wanted to put the Panama Canal completely under civilian control. In a letter to the Speaker of the House, transmitting a Panama Canal report by the Budget Bureau, he approved all recommendations of the bureau except one that proposed transfer of supervision of the canal from the Secretary of the Army to the Secretary of Commerce.

That recommendation needs his further study, he said, particularly in connection with plans now under consideration to carry out the Hoover Commission proposals for reorganization of the executive branch. In its concluding report (No. 19) the Hoover Commission recommended that further study be given to the possibility of setting up an Administration for Overseas Affairs that would take over the Panama Canal and a number of other units. A bill to that general effect has passed the Senate but stalled in the House, reportedly on State Department opposition.

**• It's independent now**—As the Budget Bureau explained in its report, the Panama Canal is an independent agency headed by a governor appointed by the President, subject to confirmation by the Senate. The President has delegated supervisory authority over the Panama Canal to the Secretary of the Army, but "the agency is not legally a part of the Department of the Army or the Department of Defense."

In time of war, the President can designate an army officer "to exercise exclusive authority and jurisdiction over the operation of the canal and its adjuncts." The canal has been operating under such an executive order since Sept. 5, 1939. The order is still in effect.

**• Army always had it**—From the very beginning, under President Theodore Roosevelt, supervision of the canal and of the Panama Railroad has been vested in the Secretary of War and in his successor, the Secretary of the Army. As a matter of practice, the President has always appointed governors from the Corps of Engineers.

Recommendations by the Budget Bureau that received presidential approval proposed that:

1. All functions of the canal except those pertaining to civil government, health and sanitation be transferred to a new Panama Canal Co., which would replace the present Panama Railroad Co. and the name, the Panama Canal, be changed to Canal Zone Government;
2. The Governor be given authority to determine the internal organization of the Panama Canal.
3. The directors of the Panama Canal Co. be authorized to set toll rates, subject to the President's approval (no specific recommendation to charge tolls for military vessels);
4. The President consider revoking the executive order of Sept. 5, 1939.

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## Seek clean streams law

North Carolina's 1951 legislature will get clean streams legislation from the state Stream Sanitation Committee. The Board of Health has been asked to sponsor it too. Cities seeking to expand water sources are finding rivers too polluted for use, according to J. M. Jarrett, committee chairman and head of the board's sanitary engineering division.

# Vote on Central Arizona project expected in Senate this week

**California-Arizona water dispute showdown possible—Bill also provides for Supreme Court appeal on contested issues**

A Senate decision was expected this week on the bill to authorize the controversial Central Arizona Project and a Supreme Court test of California-Arizona claims to Colorado River water needed for the proposed development. Majority leaders agreed to let Senator Carl Hayden, Arizona Democrat, bring up the bill February 6.

• **Court test added**—During the last session, the Central Arizona measure went through six months of hearings and amendment by the Senate Interior Committee. As originally introduced by Arizona's Senator McFarland, the bill contained no provision for a Supreme Court suit on water rights. Committee Chairman O'Mahoney, of Wyoming, and Senator Millikin, of Colorado, offered an amendment to permit joinder of the United States in a Supreme Court action. The amendment was far from satisfactory to California (ENR July 14, 1949, p. 28).

Finally, on August 3, the Interior Committee reported the bill amended basically in accordance with the O'Mahoney suggestion. The bill will have tough sledding in the Senate this week, but it has some chance for passage there. Its outlook in the House is uncertain.

• **Veto expected**—Actually, any Congressional action at this session is likely to prove largely academic. President Truman would almost certainly veto any water legislation that departs from existing law until he receives the report of his new Water Resources Policy Commission, (ENR Jan. 19, p. 27). That report is not due until December.

The $738-million Central Arizona scheme (ENR June 3, 1948, vol. p. 921) requires a radical departure from reclamation law now on the books. To make the project economically feasible, the Reclamation Bureau has pointed out, for example, that the present 50-year repayment period would have to be extended to 78 years. Other special considerations—in changing the charges on power in order to subsidize irrigation costs—also are involved.

• **No Filibuster**—California's Sen. Sheridan Downey, leader of the forces opposing the bill, assured ENGINEERING NEWS-RECORD that there would be no filibustering to delay a Senate vote. He planned to make a motion first to recommit the bill to the Interior Committee and perhaps to the Judiciary Committee, but he had no illusions that this motion would carry. For later use he had planned some perfecting amendments that he intended to offer.

Senator Downey's own arguments against the bill would not take more than three to five hours to present, he said. Other senators on his side could complete the opposition case in three days, he estimated. He looked for a vote on the bill by the end of this week.

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## Buying practices Changed

New Mexico's Highway Department has been told to stop designating trade names in equipment purchases and to use competitive bidding where possible. Highway Engineer Burton Dwyre said he'd meet the governor's request, but defended the outlawed practice as of benefit to the public.

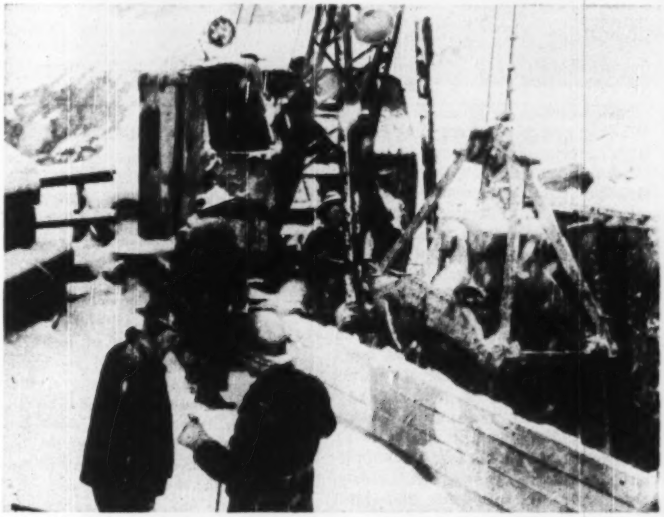
## Industrial waste experts to aid abatement drive

As many as 200 of "the best technical minds in the country" are to be put to work on water pollution problems arising from industrial wastes.

They'll be working on technical subcommittees of a new group to be formed under the sponsorship of the U. S. Public Health Service and the Water Pollution Control Advisory Board. The board adopted a suggestion at its last meeting (ENR Jan. 26, p. 19) that a National Technical Task Committee on Industrial Wastes be formed. The task group would have perhaps 25 members. Its subcommittees, though, organized from industrial groups with allied interests, would consist of the "best minds."

The task group's function will be to inventory, appraise, coordinate and promote research and development work on industrial waste treatment and control, to stimulate close relationships between industries.

The group's work would be based on the advisory board's policy that industrial pollution is an industrial problem primarily. Industrial officials who have been approached on the idea have offered cooperation, according to Louis F. Warrick, chief of USPHS' Technical Services Branch and one of those who proposed the task committee to the advisory board.



**COLD OUTSIDE—Excavation of fault zone treatment shafts at Hungry Horse Dam is continuing through winter despite temperatures as low as 28° F. below zero and total snowfall of 76 in. at Bureau of Reclamation project. Dragline buckets are used to hoist excavated rock from two shafts being drilled under upstream and downstream edges of 564-ft high dam. Following grouting operations next spring to seal bedrock foundations against seepage of water under dam, shafts will be filled with concrete to form part of the foundation for world's fourth largest and third highest concrete dam.**

## Concrete producers see better year in '50

### National Sand and Gravel and National Ready-Mixed Concrete Associations hold conventions at Chicago

Sand and gravel production and the manufacture of ready-mixed concrete this year should top that of 1949. This prediction was made by Vincent P. Ahern, at a four-day joint meeting of the National Ready-Mixed Concrete Association and the National Sand and Gravel Association at Chicago. Ahern is secretary of both.

Last year's figures haven't been compiled yet, but Ahern thinks ready-mixed concrete will show an increase of 2,500,000 cu yd over 1948. Sand and gravel production in 1949 probably reached 325,000,000 tons, up 7,000,000 tons over 1948.

**Truck safety pays**—Both associations were urged to establish safe driving standards for truck drivers. Accidents are costing more and without better safety records, both industries will forfeit considerable good will.

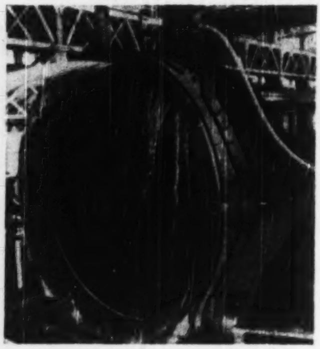
All ready-mix concrete producers should guard against damaging streets and highways with over-weight trucks, Robt. F. Porter, 1949 president of NRMCA, declared. He expressed concern over the axle-weight restrictions proposed by the AASHO.

Porter urged members to organize and discuss load limitations with state highway departments. Increased weight restrictions will prevent hauling large enough pay loads to compete with site-mixed concrete.

**Specifications trend steady**—Stanton Walker, director of engineering for both associations, foresaw no significant trends during 1950 in specifications governing either sand and gravel or ready-mixed concrete. The Corps of Engineers has been most cooperative with the association in selection and approval of aggregate sources for concrete work, Walker said. Still, their grading specifications for gravel often are confusing and difficult to follow. Many engineers, he said, don't realize that sand and gravel grading specifications could be more clear.

Newly elected officers of NSGA include: H. N. Snyder, Buffalo, N. Y., president, succeeding T. E. Popplewell, Fort Worth; A. R. Shiely, St. Paul, vice president; and John Murphy, Spokane, secretary-treasurer.

William Moore, Boston, Mass., is the new president of NRMCA. He succeeds Robert F. Porter, Towson, Md. N. J. Fredericks, Detroit, is the new vice president; and R. K. Humphries, San Francisco, is the new secretary-treasurer.



**VALVE TESTING—Workmen have just unseated this 13-ft butterfly valve during a test run at Westinghouse Electric Corp.'s Sunnyvale, Cal., plant. The 50-ton steel valve is one of four built for the Rock Creek power plant of Pacific Gas & Electric Co. To make the test, two valves were bolted together and water pumped under pressure into the space between them. The valves will pass as much as 1,350,000 gpm.**

## Sign $12 million contract for second UN building

Contract for the Meeting Halls Building of the United Nations Permanent Headquarters at New York City has been signed by the UN and Fuller-Turner-Walsh-Slattery, Inc. The contract involves approximately $12,000,000 and is to be completed in 1951. American Bridge Co. holds the contract for structural steel, to be delivered this spring.

### BUREAUCRATS BACKTRACK

North Carolina's Licensing Board for Tile Contractors has decided that a law without teeth is better than no law at all.

That was the net balance of its decision not to push an appeal against a Superior Court ruling which had thrown one of its cases out of court. The decision not to push the appeal it had filed leaves in question its ability to enforce any further orders. But at least the board hasn't been declared unconstitutional—as was a similar board which took an appeal to the state Supreme Court last year, only to have its law wiped out. There was some indication that the Tile Contracting Board will bring another test when it thinks it has a better case.

The board had charged two Asheville men with laying tile without a license. They were fined $200 each. Their appeal brought a reversal of the conviction and a strong Superior Court blast against the licensing law as one depriving men of their rights, establishing a monopoly and preventing men from earning a living.

## Engineers name Dunne to air center post

### Acting district engineer for Tullahoma District advanced to district engineer—G. A. Wallace named assistant

Two recent appointments by the Chief of Engineers put into active operation the newly created Tullahoma District, Tullahoma, Tenn. Col. David M. Dunne has been appointed district engineer and Galen A. Wallace has been named chief engineer and special assistant to the district engineer. This new district will design and construct the Air Engineering Development Center of the Air Forces, approved by the President and the Department of Defense last November (ENR Nov. 17, 1949, p. 25), to be located at Camp Forrest, Tenn.

• **Wide experience**—Colonel Dunne was graduated from the U. S. Military Academy in 1932, attended the Engineer School at Fort Belvoir for two years and graduated with a degree in civil engineering from Cornell University in 1926. His early military service included assignments with the 1st, 11th, and 6th Engineers at various locations. From 1934 to 1936, he was assistant district engineer at Seattle, during which time he was for one year Washington state engineer for WPA. For four years he was assistant professor of Military Science and Tactics at Carnegie Tech.

Early in World War II, Colonel Dunne was assistant engineer of the general headquarters, Army War College, Washington, D. C. In 1943, he was made engineer of the Second Army, at Memphis. The following year, he went to Australia and New Guinea to become engineer under Gen. Robert L. Eichelberger. After V-J Day, as engineer of the 8th Army in Japan, he supervised all construction in that country required by the occupation forces. Upon his return to the U. S. in 1947, he was assigned to the Engineer Center, Fort Belvoir, and in June of that year, became assistant commandant of the Engineer School. He was first appointed acting district engineer of the Tullahoma District on November 15, 1949.

• **25 years with the corps**—Wallace, during the last ten years, has been head engineer in charge of the Project Planning Branch, Engineering Division, Civil Works, Office of the Chief of Engineers. His previous experience was comprised of 15 years in eight engineering districts throughout the country in construction and design of flood control and navigation projects. Wallace is a graduate of MIT and Ohio Wesleyan University.

## Army, TVA hail effects of dams on Ohio floods

Army and TVA reservoirs upstream from Cairo, Ill., saved numerous homes and farms in Southern Missouri from devastation during the recent Ohio River flood (ENR Jan. 19, p. 30).

The situation remains critical, according to the Engineers' Ohio River Division, and will remain so until river stages are lower and flood storage in some of the reservoirs can be released.

TVA and the Army joined in the statement which attributed to their upstream reservoirs the Cairo crest level which made it unnecessary to blast fuse plug levees of the Birds Point-New Madrid Floodway, in Missouri. Residents of the area had been evacuated in preparation for blasting the levees, but the failure of the crest to exceed 55.3 ft at Cairo rendered use of the floodway unnecessary.

"Efficacy of the flood control reservoirs has been proved," the joint statement asserted. "Had it not been for the vast storage provided by these structures, a crest at Cairo of about 58 ft might have resulted, instead of 55.3 ft."

TVA, the statement said, began to draw down Kentucky Reservoir, above Paducah and the confluence of the Ohio and Tennessee Rivers, when the Cairo stage reached 40 ft. The drawdown went on till Jan. 14, when the Kentucky outflow was cut from 325,000 cfs to 150,000 cfs, later to 100,000. This discharge was about 170,000 cfs smaller than would have been reached had there been no dams to regulate the flow. Outflow from Engineer reservoirs was halted completely except at Dale Hollow.

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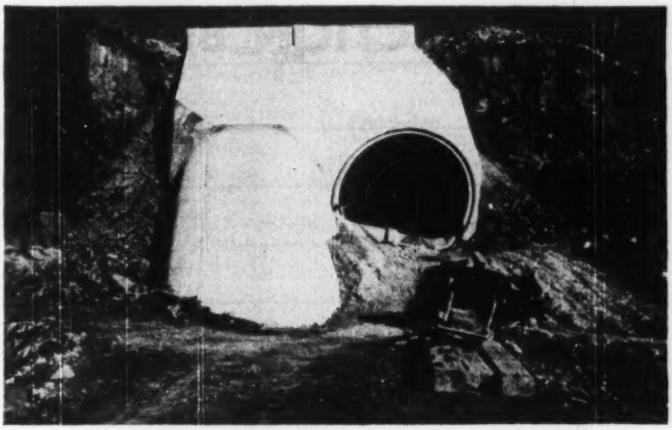
## Name specialist for N. Y. State code study

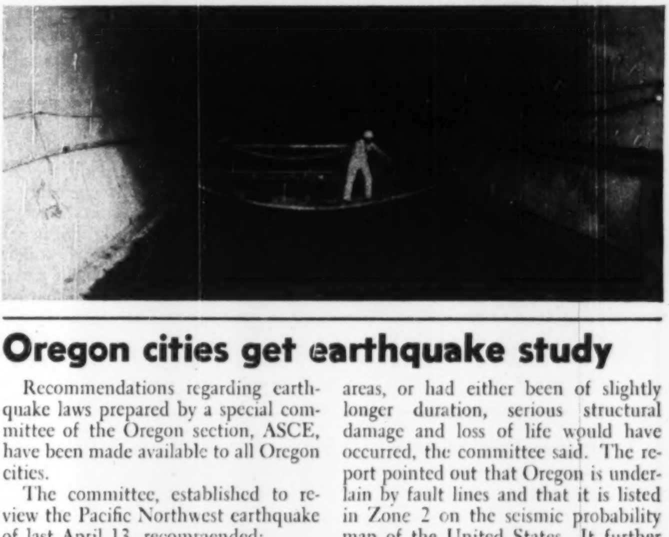
With research studies and technical tests under way, preparatory to writing a state building code, the New York State Building Code Commission last week announced appointment of a technical director to head the research program.

The appointee is Emil J. Szendy, New York City architect, who recently completed writing new codes for Cleveland, Ohio, and Harrisburg, Pa.

According to E. J. McGrew, Jr., chairman of the New York state body, Mr. Szendy's first task in his new post will be to advise the commission and help organize the work of preparing portions of the code relating to one and two-family dwellings—a top-priority project.



**WATER ON THE LAND—Power generation construction is pretty well along on the Reclamation Bureau's Columbia Basin Project (Grand Coulee Dam), so irrigation structures are being rushed to get water onto the land as soon as possible. Above is the portal of the Bacon Siphon, near Coulee City, Wash., a 1.9 mi. tunnel into which the project's main canal will discharge. Completed barrel, at left, will carry water for 500,000 acres. A 23.5 ft. twin barrel at right is now plugged by a wooden bulkhead. Below, workman on a finishing dolly puts a finish on the tunnel floor. (Reclamation Bureau Photos.)**



## Oregon cities get earthquake study

Recommendations regarding earthquake laws prepared by a special committee of the Oregon section, ASCE, have been made available to all Oregon cities.

The committee, established to review the Pacific Northwest earthquake of last April 13, recommended:

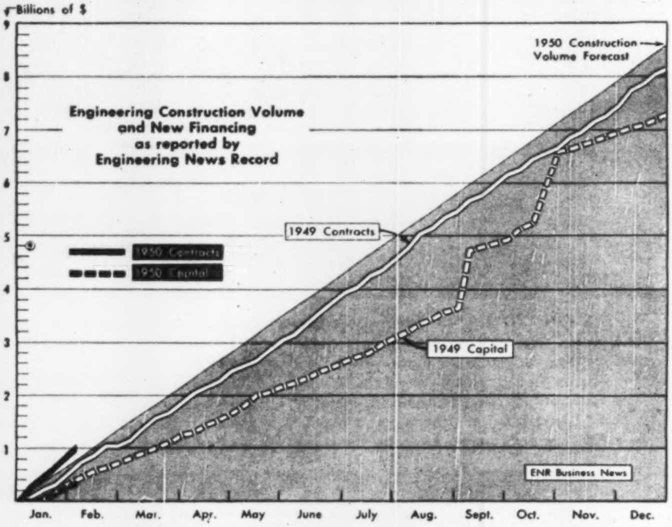
1. State laws of the type in effect in California.
2. Adoption of earthquake provisions of the Pacific Coast Building Officials Conference uniform building code.
3. Suggested that all existing buildings be surveyed to determine their earthquake vulnerability.

**• Could have been worse**—The committee pointed out that a shock near Freewater, Ore., in 1936, and the recent 'quake centering in Washington both had an intensity of VIII on the modified Mercalli scale. Had either of them centered in more populated areas, or had either been of slightly longer duration, serious structural damage and loss of life would have occurred, the committee said. The report pointed out that Oregon is underlain by fault lines and that it is listed in Zone 2 on the seismic probability map of the United States. It further outlined inadequate city building codes and state laws relative to earthquakes.

What action will be taken as result of the report, or of the 1949 earthquake, is not yet known. Many cities have not considered new code provisions. The state legislature meets every other year and is not scheduled to be in session until next January.

Guy H. Taylor, of Moffatt, Nichol and Taylor, consulting engineers, was chairman of the committee. Other members were A. Dodge, Corps of Engineers; Glenn W. Holcomb, professor of structural engineering at Oregon State College; and H. Loren Thompson, consulting engineer.

# CONSTRUCTION BUSINESS



## Heavy engineering breaks all records

Heavy engineering contract volume reached for the sky last month and broke all previous records, totaling almost a billion dollars.

The weekly average of $229 million was 62 percent ahead of last year, 69 percent above the 1949 average.

Every construction classification gained except bridge and earthwork contracts. Biggest increases were for public buildings (up 78 percent), waterworks (up 154 percent), highways (up 34 percent), commercial buildings (up 117 percent) and residential buildings (up 86 percent).

Total private contracts averaged $107 million per week, 86 percent above last year. Industrial building contracts averaged $19,000,000 a week, almost double January, 1949, but only 2 percent above the 1949 average. Residential building averaged $54,000,000 a week, 86 percent above a year ago and 53 percent ahead of the average for the whole year 1949.

State and municipal contracts averaged $53,000,000 a week, 3 percent above a year ago and 6 percent above the 1949 average. Federal contracts were up 111 percent from a year ago. Cause was $200 million project by the Atomic Energy Commission.

- **Regional developments**—All regions except the South showed strong gains in January. The Far West got the lion's share ($295 million) because of the atomic energy project started at Hanford, Wash. Even omitting the atomic energy project, however, the Far West was up 56 percent from January, 1949.

The Middle West showed a tremendous spurt in volume, especially private contracts. Volume was up 89 percent to $142 million, of which 82 percent was private. The Middle Atlantic states increased volume 41 percent over the previous year. New England gained 59 percent, but of this, only 29 percent was private. Area west of the Mississippi River showed more modest gains—up only 10 percent. The South alone fell off last month, to $90,000,000, or 29 percent below last year.

- **Financing**—State and municipal bond issues are selling in record volume, 40 percent ahead of a year ago. The $56,000,000 a week average actually exceeds slightly the volume of contracts let. This condition implies a building up of a greater backlog of contracts to be let, since in normal times, contracts exceed new financing. Corporate security issues are 63 percent below last year, as corporations turn more than ever to internal sources to finance construction. Corporate construction is now financed mostly from earnings and depreciation allowance.

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### ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD — JANUARY, 1950

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $28,000; *other public works* $50,000; *industrial buildings,* $68,000; *other buildings,* $250,000

Four Weeks—Thousands of Dollars (000 Omitted)

| | January, 1950 | | | | | | Total U. S. | | % | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Public Works** | **New England** | **Middle Atlantic** | **South** | **Mid West** | **West of Mississippi** | **Far West** | **January 1950** | **January 1949** | **Change '49 to '50** | **Canada Jan. '50** |
| Waterworks | 109 | 8,740 | 3,931 | 6,844 | 3,383 | 1,350 | **24,357** | 9,620 | +153 | 450 |
| Sewerage | 1,003 | 3,001 | 1,561 | 1,965 | 1,934 | 7,523 | **16,987** | 18,250 | — 7 | 298 |
| Bridges | 480 | 13,909 | 3,722 | 322 | 2,929 | 3,357 | **24,719** | 29,753 | — 17 | 1,051 |
| Earthwork and waterways | 245 | 446 | 3,520 | 626 | 8,953 | 12,232 | **26,022** | 49,958 | — 48 | 592 |
| Streets and Roads | 9,322 | 19,576 | 11,879 | 1,537 | 14,512 | 6,298 | **63,124** | 47,080 | + 34 | 1,115 |
| Public buildings, residential | 7,308 | 5,550 | 6,729 | ....... | 1,202 | 977 | **21,766** | 30,709 | — 29 | 3,287 |
| Other public buildings | 4,402 | 21,790 | 12,823 | 11,292 | 14,722 | 207,563 | **272,592** | 134,249 | +103 | 3,473 |
| Unclassified | 284 | 9,190 | 5,983 | 3,739 | 2,087 | 16,574 | **37,857** | 16,393 | +131 | 2,376 |
| **Total public** | **23,153** | **82,202** | **50,148** | **26,325** | **49,722** | **255,874** | **487,424** | **336,012** | **+ 45** | **12,642** |
| Federal government (included in above classifications) | 1,153 | 8,949 | 17,580 | 1,021 | 17,868 | 229,013 | **275,584** | 129,897 | +112 | 2,074 |
| **Private** | | | | | | | | | | |
| Bridges | ....... | ....... | 1,245 | ....... | ....... | ....... | **1,245** | 130 | +857 | ....... |
| Industrial buildings | 498 | 7,824 | 7,423 | 38,406 | 16,372 | 4,349 | **74,872** | 40,696 | + 84 | 2,318 |
| Com'l. buildings, residential | 5,535 | 47,430 | 22,900 | 70,615 | 43,647 | 25,083 | **215,210** | 115,380 | + 86 | 9,910 |
| Other commercial buildings | 3,425 | 66,369 | 7,573 | 6,153 | 17,746 | 3,072 | **104,338** | 48,044 | +117 | 1,825 |
| Unclassified | ....... | 1,130 | 1,490 | 865 | 22,155 | 6,746 | **32,386** | 25,564 | + 27 | 1,080 |
| **Total private** | **9,458** | **122,753** | **40,631** | **116,039** | **99,920** | **39,250** | **428,051** | **229,814** | **+ 86** | **15,133** |
| **Total Engineering Construction:** | | | | | | | | | | |
| **January, 1950 — 4 weeks** | **32,611** | **204,955** | **90,779** | **142,364** | **149,642** | **295,124** | **915,475** | ....... | ..... | **27,775** |
| December, 1949 — 5 weeks | 52,681 | 167,109 | 292,733 | 108,098 | 128,642 | 114,298 | **863,561** | ....... | ..... | 39,051 |
| January, 1949 — 4 weeks | 20,506 | 145,634 | 126,986 | 75,441 | 136,509 | 60,750 | ....... | 565,826 | ..... | 28,385 |
| % Change '49 to '50 | +59 | —41 | —29 | +89 | +10 | +386 | ....... | ....... | + 62 | —2 |

# BIDS AND BIDDERS

Major project news received after Construction Reports, page 81, went to press.)

**Downsville Dam**—Carlo Bianchi & Co., Inc., Framingham, Mass., Central Construction Co., Lawrence, Mass., Munroe-Langstroth, Inc., North Attleboro, Mass., and G. L. Rugo & Sons, Inc., Boston, low bildders on Downsville Dam, have been awarded contract at $17,902,275, by the Board of Water Supply, City of New York.

**Factory**—Hotpoint, Inc., affiliate of General Electric Co., Chicago, plans constructing refrigerator manufacturing plant in Cicero, Ill., to cost about $12,000,000.

**Rapid Transit System**—De Leuw Cather & Co., Chicago, have been selected as consulting engineers for proposed 13-mile rapid transit system in Cleveland, O., by the Cleveland Rapid Transit Commission. Estimated cost of project is $16,000,000.

**Residences and Shopping Center**—United Housing Corp., San Francisco, will construct with own forces an $8,000,000 group of residences, shopping center and site development at San Rafael, Calif. Elmore Hutchinson, San Francisco, is architect.

**Traffic Tunnel**—Morrison-Knudsen Co., Inc., San Francisco, was low bidder at $5,243,535 for the Broadway Tunnel and approaches, through Russian Hill, San Francisco, when the Department of Public Works, San Francisco, opened bids February 1. Ole Singstad, New York, N. Y., is consulting engineer for job.

**Hospital**—University of Washington, Seattle, Wash., will hold bond election November 7, to vote $10,000,000 for teaching and research hospital at Seattle.

**Parking Structure**—J. E. Griner Co., Baltimore, and Parsons, Brinckerhoff, Hall and Macdonald, New York, N. Y., have been selected to design $6,000,000 downtown parking building over Erie Railroad tracks at Youngstown, O., by the City.

**Dredging**—U. S. Engineers, Jacksonville, Fla., will open bids March 14 for dredging 15,000,000 cu yd St. Johns River Canal at an estimated cost of $2,500,000.

**Natural Gas Plant**—Sun Oil Co., New Orleans, plans natural gas plant. Estimated cost is $3,000,000.

**Water Purification Plant**—C. C. Larsen & Sons, Council Bluffs, Ia., were low bidders for constructing water purification plant and other improvements at $1,187,419, letting January 31 by the Board Waterworks Trustees, Council Bluffs.

**Hospital**—J. D. Hedin Construction Co., Minneapolis, was low bidder at $5,500,000 for Veterans Hospital at Minneapolis, at the Veterans Administration, Washington, D. C., bid opening.

**Dwellings & Hospital**—U. S. Atomic Energy Commission, Los Alamos, N. M., will take bids March 15 for dwellings at Los Alamos to cost $2,000,000, and on March 30 for hospital to cost $2,000,000 to $3,000,000.

**Chemistry and Geology Building**—Board of Regents, University of California, Los Angeles, awarded contract for chemistry and geology building at Los Angeles Campus to Haddock Engineers, Ltd., Monticello, Calif., at $2,525,000. Kaufman & Stanton, Los Angeles, are architects.

**Chemical Plant**—Phillips Chemical Co., Etter, Tex., plans chemical plant expansion to cost about $3,000,000.

**Hospital**—University of Michigan, Ann Arbor, has retained Skidmore, Owings & Merrill, New York, N. Y., to plan an out-patient hospital to cost $3,000,000, at Ann Arbor. Giffels & Vallet, Inc., Detroit, is engineer. Plans are underway by same engineer and architects for medical building to cost additional $3,000,000.

**Housing**—Whitton Brothers, Charlotte, N. C., have been awarded contract for housing at Charlotte by Youngs Realty Co., Charlotte, estimated at $2,000,000.

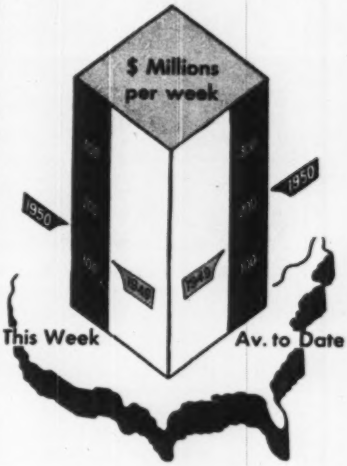
**High School**—Cramer-Vollmerhausen Co., Inc., Washington, D. C., has been awarded contract to build Spingarn High School at $2,877,700 by the District Commissioners, Washington. Merrill A. Coe, Washington, D. C., is architect.

**Transmission Line**—Department Water & Power, Los Angeles, Calif., took bids February 1 for constructing transmission line from Owens Gorge Project to City line. Wonderly Construction Co., Long Beach, Calif., was low on Schedule 1 for footings and erecting towers at $1,513,384; H. C. Smith Co., Los Angeles, was low on Proposal 2 for installing conductor, ground wire and appurtenances at $582,569 and on combination of Proposals 1 and 2 at $2,227,062.

# COSTS AND VOLUME

## ENR INDEX NUMBERS

| Index Base = 100 | | 1913 | 1926 |
|---|---|---|---|
| Construction Cost.. | Feb. '50 | 484.85 | 233.07 |
| Building Cost .... | Feb. '50 | 356.48 | 192.70 |
| Volume ............ | Jan. '50 | 407 | 179 |



## Activity This Week

As reported to ENR
(in millions of dollars)

### Amount of contracts let

| | Week of Feb. 9 1950 | Cumulative 1950 (6 wks.) | Cumulative 1949 (6 wks.) | % chge |
|---|---|---|---|---|
| Federal .... | $5.6 | $303.9 | $145.5 | +108 |
| State & Mun. | 66.8 | 326.1 | 297.7 | +9 |
| Total Public | $72.5 | $630.0 | $443.2 | +42 |
| Total Private | 69.4 | 588.0 | 463.5 | +27 |
| U. S. Total. | $141.9 | $1,218.0 | $906.7 | +34 |

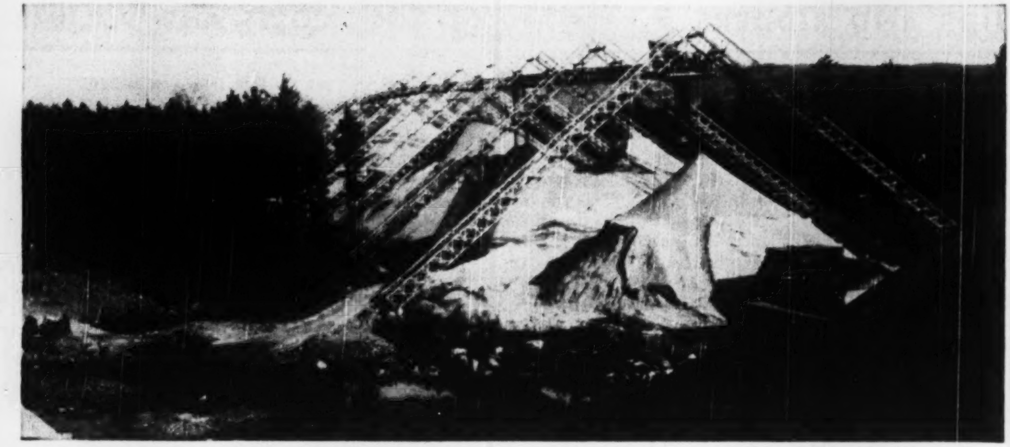
### Contracts by type of work

| | This Week | Cumulative 1950 (6 wks.) | Cumulative 1949 (6 wks.) | % chge |
|---|---|---|---|---|
| Waterworks. | $18.9 | $44.7 | $16.7 | +168 |
| Sewerage .. | 2.9 | 24.3 | 25.9 | −13 |
| Bridges .... | 2.9 | 33.4 | 38.9 | −14 |
| Highways .. | 12.9 | 94.2 | 59.0 | +59 |
| Earthwork, Waterways. | 3.0 | 38.1 | 58.9 | −35 |
| Buildings, | | | | |
| Public .... | 26.2 | 347.6 | 211.8 | +64 |
| Industrial . | 9.2 | 92.3 | 84.5 | +9 |
| Commercial | 54.6 | 450.8 | 331.0 | +36 |
| Unclassified . | 11.2 | 92.7 | 79.9 | +15 |

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

### New capital for construction

| | Cumulative 1950 (6 wks.) | Cumulative 1949 (6 wks.) | % chge |
|---|---|---|---|
| NON-FEDERAL ... | $618.3 | $601.5 | +2 |
| Corporate Securities | 319.5 | 334.4 | −4 |
| State and Municipal | 298.8 | 267.1 | +12 |
| Total Capital ...... | $618.3 | $601.5 | +2 |



**The whole materials handling plant—from pit to pour—has a backbone of . . .**

# Bailey Bridge Shows

When, in 1941, Sir Donald C. Bailey began design of his now famous Bailey bridge—major engineer "weapon" of World War II—he probably never dreamed of uses to which it would be put by the Hydro-Electric Power Commission of Ontario.

So extensive is the use of Bailey bridging on the $75 million Des Joachims Dam, Ottawa River power project (ENR Dec. 29, p 26) that its description very nearly tells the job's whole materials handling story. Peak use of the Bailey bridge units occurred early in 1949 with 3,389 tons erected.

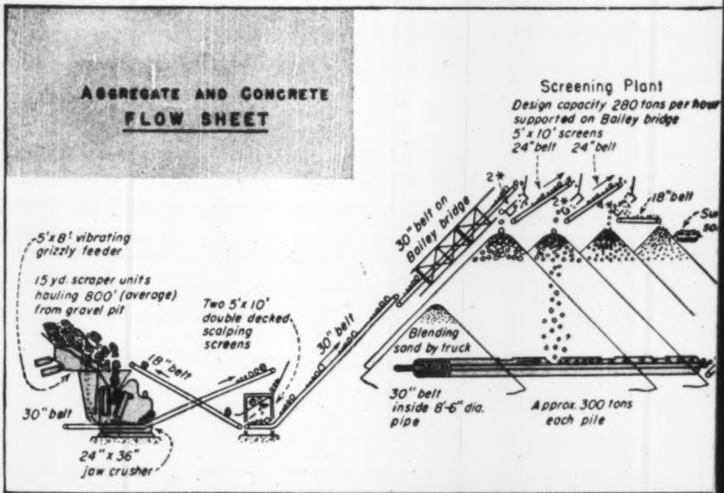
Bailey panels, fabricated for conventional use as bridge parts (see ENR July 26, 1945, vol. p 118, for details) are used as inclined spans, vertical towers and A-frames (as well as conventionally) in aggregate plant, concrete plant, and access structures as Des Joachims.

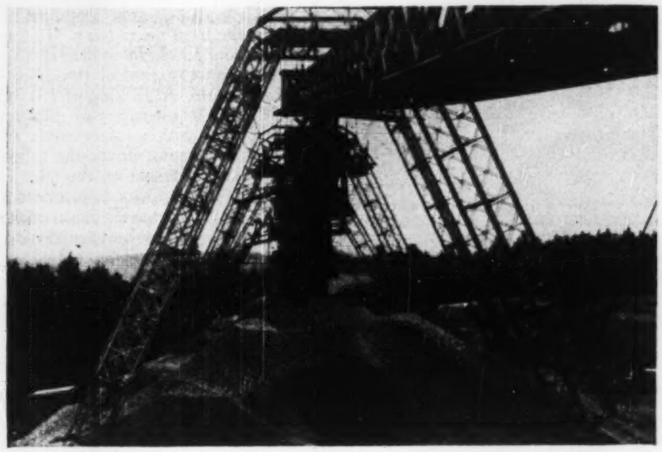
Starting at the crusher end of the aggregate plant (see accompanying flow sheet), a Bailey bridge carries a 30-in. conveyor belt that picks up roughly sorted gravel as it comes from the grizzly. (The gravel originates in a glacial deposit only an 800-ft haul away. About 90 percent of the pit run aggregate passes the grizzly, and a 24 x 30-in. crusher reduces the remainder to a 3-in. maximum size; double-decked vibrating scalping screens see that none bigger reaches the screening plant.)

At the top end of the first inclined Bailey conveyor bridge, aggregate reaches the first screen, which sheds 1½ to 3-in. stone, and passes finer gravel to a 24-in. belt leading to the next size screen. Stone ¾ to 1½ and ¼ to ¾ in. is similarly shed by successive screens and piled on the ground below them, while sand moves on to the conveyor's end to form a final pile. (Excess sand is carried off at right angles to the line of flow to be used as fill and in road surfacing). Meanwhile, necessary fines, in which the aggregate source is deficient, are trucked in from another deposit for blending.

**• Bailey towers**—The entire screening plant—screens and conveyors between screens—is supported on Bailey bridging. Conventional double-single bridge trusses (two panels wide and one panel high) with one transom (floorbeam) per bay rise both vertically and at angles from concrete footings to form straight and A-frame towers. From these towers—ranging up to 90 ft in height—hang screens and the Bailey bridge supporting conveyors between screens.

Little adaptation was needed in making towers of the bridge parts. Whether built of two vertical legs and one horizontal leg or two inclined and one horizontal, the towers were conventionally pin-connected truss sec-


AGGREGATE AND CONCRETE
FLOW SHEET
Screening Plant
Design capacity 280 tons per hour
supported on Bailey bridge
5' x 10' screens
24" belt
24" belt
2*
18" belt
30" belt on Bailey bridge
5'x 8' vibrating grizzly feeder
15 yd. scraper units hauling 800' (average) from gravel pit
Two 5'x 10' double decked scalping screens
30" belt
18" belt
30" belt
24" x 36" jaw crusher
Blending sand by truck
30" belt inside 8'-6" dia. pipe
Approx. 300 tons each pile



**Bailey units at Des Joachims Dam where . . .**

# Its Versatility

tions. Only lower (or inside) chords were pinned at ends of the tower's horizontal top truss. Then, from these horizontal trusses the tower loads were hung by ⅝-in.-dia wire rope with a minimum of rigging fittings.

On the ground, below the screening plant piles, runs an 8 ft 6 in. dia corrugated steel reclaiming tunnel carrying a 30-in. conveyor belt. Manually operated roof hatches, opened from within the tunnel, charge this belt with aggregate from the respective screens. The aggregate then passes to another inclined belt and is taken via Bailey bridge up above the large stockpile area where it is stored for year-round concreting.

Five stockpiles—one of each graded size—extend along the line of flow from screening plant to mixing plant; and the mixing plant stands on the river's north bank, right at the Quebec end of the main dam. Nearly 150,000 tons of material in piles 60 ft high can be stored above another ground-level reclaiming tunnel some 2,000 ft long.

**• A-frames over stockpiles**—Here in the storage area, where piles are big and constantly shifting, diagonal legs of the conveyor trestle spread wide to straddle stored aggregate. Damage common to buried trestle legs (due to unequal loading and wear) is avoided; legs above the pile can be maintained as required.

Pairs of double-single Bailey bridges slope up at an angle of about 38 deg to be pin-connected through their bottom chords at vertices along the line of flow. Hanging just below the top of these A-frames is a double-single Bailey, spanning 100 ft from tower to tower and carrying the conveyor.

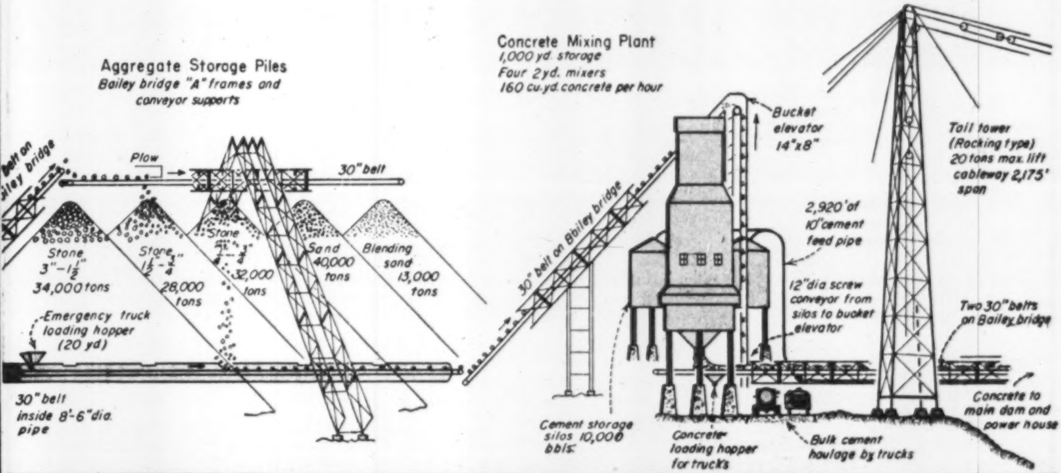
Graded aggregate traveling on the belt is plowed off to fall onto its own particular pile, according to size. Conveyor bridging is hung from towers with ⅝-in. dia wire rope, and towers are guyed with wire rope in the plane of their lower chords. Reclaiming is again done through the tunnel on a 30-in. belt.

Steam heat prevents freezing of tunnel hatches in winter, and steam jets warm sand on its way to the mixing plant in sub-freezing weather.

A final, 500-ft long inclined Bailey bridge takes materials from the end of the stockpile reclaiming tunnel belt and up a 15 deg rise to 980-ton capacity storage bins atop the fully automatic mixing plant.

**• Push-button batching**—Inside the plant, push-button electrical controls batch materials by weight for 2- cu yd mixers. Weighed aggregate, cement and water then are spilled into one of four tilting mixers which can total a 160-cu yd per hour output.

After a timed period, an air-controlled swivel chute directs concrete to one of two 30-in. belts loading out of the plant to the main dam. A third belt, 24-in. wide, leads out in the opposite direction on a timber trestle;



Aggregate Storage Piles
Bailey bridge "A" frames and conveyor supports
Belt on Bailey bridge
Plow
30" belt
Stone 3"–1½" 34,000 tons
Stone 1½"–¾" 28,000 tons
Stone 32,000 tons
Sand 40,000 tons
Blending sand 13,000 tons
Emergency truck loading hopper (20 yd)
30" belt inside 8'-6" dia. pipe
Concrete Mixing Plant
1,000 yd. storage
Four 2yd. mixers
160 cu.yd. concrete per hour
30" belt on Bailey bridge
Bucket elevator 14"x8"
2,920' of 10" cement feed pipe
12" dia screw conveyor from silos to bucket elevator
Tail tower (Rocking type) 20 tons max. lift cableway 2,175' span
Two 30" belts on Bailey bridge
Concrete to main dam and power house
Cement storage silos 10,000 bbls.
Concrete loading hopper for trucks
Bulk cement haulage by trucks

from this belt a 1,300-ft long, 65-ft high auxiliary dam flanking the main dam was poured. There are also hoppers through which the plant can discharge to trucks.

(The mixing plant at Des Joachims was formerly used by the Aluminum Company of Canada at its 1,020,000-hp. Shipshaw project on the Saguenay River at Arvida, Que.)

**• Cement pumped, trucked**—During early stages of construction, cement was trucked 3½ miles from the rail siding at Moor Lake Station to the Ontario side of the river. From there it was pumped or blown some 3,000 ft. across to the Quebec side through 10-in. pipe to four 2,800-bbl. silos at the mixing plant. The pump used pushed 600 bbl of cement per hour across the Ottawa, but construction activity along its route was constantly causing the pipe to be moved, its flow to be cut. So, the pipe was finally dismantled and trucks hauling cement now take it over a downstream highway bridge directly to the Quebec side. Extra hauling mileage from the railhead is justified by convenience of easier handling.

Out of the mixing plant and back on rubber belt conveyors, the materials, now one of three qualities of concrete, move out along the upstream face of the dam on a Bailey bridge trestle. This trestle, now partially dismantled, was 2,050 ft long when it crossed the entire valley. There were 12 double-double Bailey spans 144 ft long, one 130-ft and one 198-ft double-triple span—all supported on towers of Bailey bridging. Accurately founded on concrete bases, these towers are Bailey panels set on end, just as are the much lighter towers of the screening plant.

The conveyor trestle carries two 30-in. belts about 15 ft upstream of the dam's upstream face at El. 525—as much as 130 ft above original ground level. Top of dam is at El. 505, so concrete taken from the belts by movable, track-mounted trippers had to be led down by chutes and through elephant trunks to all pours.

Concrete is mixed in three qualities: rich for a 10-ft face thickness, lean for the inner mass and richest for use in power house construction. Low heat cement is used, but no other attempt is made at decreasing heat of hydration generated in the 40 to 60-ft high pours so commonly and successfully made by Ontario Hydro in all its recent jobs.

**• Cold weather concreting**—While cooling appears to be no problem, heating in winter definitely is. As mentioned above, sand passes a steam jet en route to the mixing plant. Then as winter temperature drops to 40 deg below zero, water for the mix is heated to 180 deg, and concrete is delivered to steam-heated forms, completely enclosed with a roof and wrapped in canvas, to be placed at 60 deg F. With this careful control, concreting continues throughout the winter.

**CONVENTIONAL USE of the military bridging gave builders a 500-ft access bridge—in a hurry. (ENR Staff Photos)**

For work on the 8½ to 12 batter of the dam's downstream face, 1,000-sq ft formwork sections built up of 4 x 10 ft plywood panels were moved about by a crawler crane at the foot of the dam. Panels of ¾ in. thick plywood backed by nailed and glued 2 x 4-in. lumber ribs were clamped together on vertical studs and joined for lifting by horizontal walers. Such sections of formwork were built up for bulkheads as well as for upstream and downstream faces. Where sheathing was used formwork construction was similar to that on most H.E.P.C. jobs (see ENR Sept 8, 1948, p 64).

**• Cableway handles materials**—Form lumber, Bailey bridging, reinforcing steel, structural steel for the power plant, and penstock sections—all materials but the belt-conveyed concrete—were handled by the 2,175-ft cableway spanning the main dam. Though it handled no concrete whatsoever, its 18-ton capacity "travelift" has been so busy in servicing the dam that all power plant superstructure steel was erected over a single week-end; the only time the cableway could be found idle.

The cableway's 150-ft head tower on the Ontario side of the river rides rails in an arc which subtends a 30 deg angle. This lateral movement permits the cableway to service the entire area of the dam and the 590 x 183 ft power house.

Originally built in 1923 and used in the U. S. as well as at Shipshaw in Quebec, the head tower has a 310-ton sandbox counterweight and a 200-hp hoisting motor to control the 2¾-in.-dia. main cable. At full sag of 161 ft, the 14,500 lb carriage can lift its rated 18 tons with a safety factor of two. A 75-hp motor drives the tower in its lateral movement on the rails.

The 159-ft tail tower is in effect a mast from which cable tension is taken by two anchor lines down to solid rock. Anchor bolts, holding the tail tower legs to concrete piers, have 8 in. of play, giving the tower freedom to rock as tension in the cable varies. This rocking action transmits cable tension to the anchors, requiring the tower to take only the component of this tension which acts along its axis. This feature was a special design of R. H. Self, works engineer for the Hydro Commission, and G. M. Robinson of Canadian Bridge Co.

Operated by varying speed drum hoists, the cableway carriage can raise and lower loads while traveling. Eight wheels spread its load along the main cable, and single-point suspension within the carriage itself cuts down on impact while permitting greater speed of travel.

**• Conventional bridge**—Bailey bridging found its most conventional use as an access bridge on temporary concrete piers below the main dam. Five 100-ft spans were pushed out in the approved military construction method to bridge the distance in a week's time.

In this, its first large scale uses of Bailey bridging, the Hydro Commission set up a consulting engineering division whose job it is to design, test and advise on uses of the structure. E. P. Muntz is in charge of this consulting division, assisted by A. M. Lount.

## Public Housing Costs Down

Development costs of public housing projects have declined more than $1,500 per dwelling in the last year, according to a survey of 39 projects conducted by the National Association of Housing Officials. Data were gathered from projects in Connecticut, Illinois, Massachusetts, New York and Wisconsin.

Median costs per dwelling of the projects built in the third quarter of 1948 were $12,464. This compares to $10,814 in the quarter ending September 30, 1949. Dwelling structure and equipment cost per room decreased nearly $250 in that period.

Size of the dwellings in 29 of the newly built housing developments averaged from 3.5 to 4.4 rooms, with only one of the projects surveyed having an average of less than 3.5 rooms.

**Drilling speed doubled; footage costs cut more than half with . . .**

# Carbide-Insert Rock Bits

**L. H. Lindgren**

**Development Engineer, Milford Tool Co., Milford, Conn.**

IN A SCANT TWO YEARS the fast-cutting, long-wearing carbide-insert bit has shouldered its way into the picture, wherever rock is drilled. From the first, contractors and quarrymen found the bit's performance records attractive. These men tried the bit, helped work the bugs out of it and in many cases adopted the bit for all drilling.

In the past year the bit has been used on most of the major rock excavation projects in the East. Two tunnel projects in New England, completed last year, saw use of insert bits almost exclusively. Other jobs include the Pennsylvania Turnpike Extension, Palisades Interstate Park throughway, the New Hampshire Turnpike, Connecticut state projects, and New York City excavations. On these projects, carbide-insert bits are being used on both hand-held tools and wagon drills.

The reason for the rapid acceptance of the carbide-insert bit probably can be explained by the fact that contractors were primed for an improved method for drilling rock, since so many improvements had been made in allied equipment. In fact, it seemed that for fifteen years all the engineering effort and energy had been expended on compressors, air equipment, and pneumatic tools, while little attention was paid to the tool that did the actual drilling—the rock bit.

What is a carbide-insert bit? What will it do? What are its advantages and disadvantages? How can it be used most efficiently? Each of these questions can be given a good answer after two years of carbide-insert bit use under a wide variety of conditions.

### What the bit is

The carbide-insert bit is a detachable rock drill bit, either single-chisel or 4-point, equipped with cemented tungsten-carbide inserts, brazed into the body at those points that are subjected to the greatest wear. The chisel carbide bit usually is designed with a single full-gage carbide insert, set deep to allow for considerable abrasive wear. This type varies from 1½ in. dia. to 2½ in dia., in ⅛-in. increments.

The 4-point carbide-insert rock bit is designed along the same lines as the standard steel detachable bit except that four tungsten-carbide inserts, rectangular in the seat and with cutting angles formed on the inserts, are brazed into the body at the extreme wear surfaces of the bit. Here again, sizes vary from 1½ in. to 2½ in. dia. in ⅛-in. increments, with special types ranging up to 5½ in. dia.

The carbide inserts are a powder metallurgy product composed of tungsten-carbide particles bonded together with cobalt. The percentage compositions may be varied by different manufacturers, but in general, the degree of hardness, the grain size, and the rupture strength of the carbide inserts have been standardized. This is an important factor in attaining uniform performance by all types and makes of carbide bits, because it consequently becomes possible to state that any carbide bit will drill from 50 to 100 times longer than a steel bit. Lack of standardization in the type of carbide used undoubtedly would result in erratic performances.

The performance of the carbide bit can not be measured accurately without comparing it under like conditions with the standard steel detachable bit.

This seems obvious, yet some users have been disappointed by ignoring limiting conditions. Contractors have tried to get 1,100 feet of drilling out of one carbide bit in rock that the steel bit would drill only 1 foot, simply because they were told the bit would drill 1,100 feet. In fact, in the above case the bit was dull after 75 feet of drilling and it had to be resharpened.

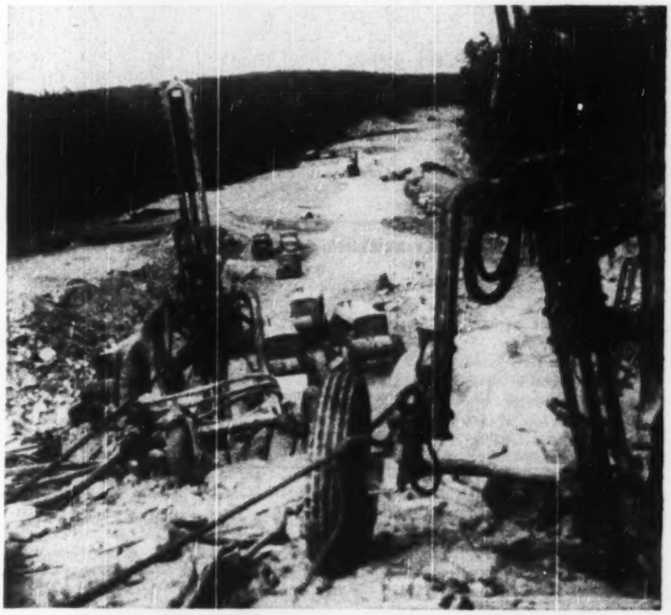
For this reason a few performance records of the carbide-insert bits are presented. These records are taken from tests or "on the job" results.

**A. Jack hammer applications:**

In quarry work probably the most common application for carbide bits is secondary drilling. A typical secondary-drilling cost analysis of a trap rock quarry in New England is shown in Table I, next page. On this job there was a saving of $.26 per ft. or 70 percent saving in overall costs, not including saving in air and overhead.

**B. Heavy pneumatic rock drill equipment applications:**

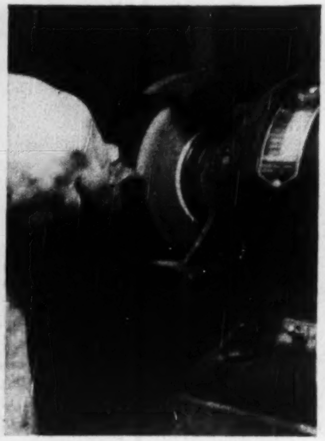
The carbide insert bit has been subjected to its severest test in use with



**CARBIDE-INSERT BITS were used 100 percent on New York's Palisades Interstate Park road job—an example of the bits' adoption rate.**

## How to regrind a bit . . . Cut back steel; restore carbide's face angles and gage;

**1** With standard alum. oxide steel-cutting wheel, grind the steel away from the carbide inserts to give silicon carbide wheel less material to remove.



**2** With silicon carbide wheel, grind the cutting-surface angles of the carbide inserts. The included angle of the carbide is 100 to 105 deg.

**3** Grind gage of inserts with the silicon carbide wheel to restore original clearances, which vary from 1 to 3 deg. Necessary only in case of excessive gage wear.

wagon drills and heavy drifters. Here again the carbide bit has revolutionized drilling practices in all types of rock. In fact, some contractors and quarry men have referred to the use of the carbide-insert bit as "high speed drilling". For example on a road job recently completed in New England, the carbide insert bit was used 100 percent and gave the results shown in Table II. On this job the average total service per bit was 1,200 ft. (medium hard rock.)

These figures represent material cost only; the real saving was in labor costs because of the increased speed of drilling and the saving in steel changes. The average drilling speed was 2 ft. per min. for the carbide bits—at least twice that of steel bits. Equipment on this job included seven 315-cfm. compressors and seven wagon drills. Bit sizes were 2¼ in., 2⅛ in., and 2 in., for both 18- and 24-foot holes.

On road jobs where extremely hard rock (1 ft. of drilling for steel bit) is encountered, the main problem is to limit and control the footage between grinds to insure maximum drilling speeds and to prevent excessive wear on the carbide. The drilling speed of a dull carbide bit is one-half the speed of a sharp bit. This "dull point" exists when a ⅛-in. or $\frac{3}{16}$-in. flat is worn on the top surface of each insert. To check this point, we conducted a test on a road job in New York State where the rock was extremely hard—a steel bit was completely unusuable after 12 to 18 in. of drilling. We drilled fifteen 18-ft. holes using 2¼-in. bit for the 6-ft. steel; a 2⅛-in. bit for the 12-ft. steel and a 2-in. bit for the 18-ft. steel. For holes Nos. 1 to 10 the drilling speed remained fairly constant at an average time of 16 min. including the time for changing steel. Between holes No. 10 and No. 13 the bits showed enough wear to affect the drilling speed, increasing the time to 20 min. For holes No. 14 and No. 15 the time was increased to 28 min. and the inserts were worn with a ⅛-in. flat on top at the gage points. Thus, the drilling speed was reduced from 12 to 14 in. per min. for a sharp bit to 6 to 8 in. per min. for a dull bit. Therefore we sharpened the bits after every 80 to 90 ft. of drilling and as a result kept the drilling speeds as near maximum as possible.

This practice also gave a much longer total life for the carbide bit, with 5 to 8 resharpenings per bit.

The carbide-insert bit has introduced new principles of cost evaluation in rock drilling: It is a labor-saving device; although it is an expensive tool, it has a long life with a resultant unit cost much lower than that for steel bits.

Advantages of the carbide insert bit are:

**a.** Increased drilling speeds of the carbide bit compared to those of the

### TABLE I SECONDARY-DRILLING COST ANALYSIS—TRAP ROCK

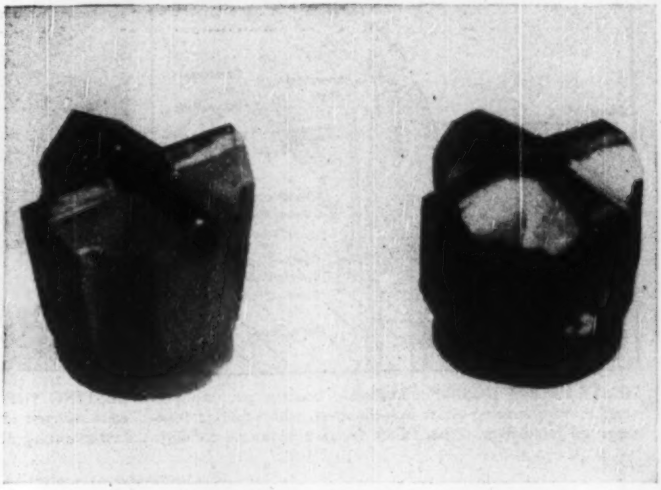
| Item | 2-in. Steel Bit | 1 5/8-in. Carbide Bit |
|---|---|---|
| Drilling speed (in. per min.) | 3 | 8 |
| Footage per day | 80 | 175 |
| Footage per bit (incl. grinds) | 3 | 400 |
| Bit cost (incl. cost of regrinds) | $.66 | $16.00 |
| Material costs per foot of drilling | .22 per ft. | .04 per ft. |
| Labor cost per foot of drilling ($12.00 day) | .15 per ft. | .07 per ft. |
| Total labor and material | .37 per ft. | .11 per ft. |

### TABLE II ROAD JOB DRILLING COST ANALYSIS—MEDIUM HARD ROCK

| | |
|---|---|
| Rock character—10 to 12 ft. of drilling for a steel bit, including resharpening | |
| Total footage drilled (carbide) | 75,000 |
| Total rock removed | 72,000 cu. yd. |
| Total cost of carbide bits (includes resharpening) | $1,1000.00 |
| Bit cost per ft. of rock drilled | $\frac{1,100}{75,000} = \$0.013$ |

## dress down skirts

**4** With the alum. oxide wheel grind the steel skirt portion of the bit, below the carbide, to restore the same clearances as on a new bit—2 or 3 deg.



BEFORE AND AFTER GRINDING—Dull bit will cut, but with poor efficiency. Grinding will restore cutting speed. Resharpening is important because the fast-cutting characteristics are solely dependent on the cutting angles and gage clearances. Correctness of cutting angles can be tried by piece of sheet metal with 105-deg. angle cut out.

steel bit mean lower labor costs per foot of rock drilled. They also mean that greater efficiency results in coordinating job equipment, since speed of drilling remains fairly constant even when hard rock is encountered.

**b.** Longer drill life between regrinds gives the carbide bit another important advantage over the steel bit. On most jobs the carbide-insert bits are changed only once a day, resulting in a continuous period of drilling without interruptions.

**c.** Fewer changes in bit sizes are needed for a single hole. Although there was a tendency to drill deep holes without changing sizes of the carbide bits, it can now be said that for long holes, say 18 or 24 ft. deep, it is better to use 2 or 3 changes in diameters to allow for easier removal of the drill steels from the hole.

**d.** Drill steel costs are reduced. It has been found that there are fewer rod breakages and longer thread life on the rods when carbide insert bits are used. The free cutting action of this carbide bit lessens the reaction blow against the steel drill stem and thereby increases the life of the rod before fatigue is apparent.

Disadvantages of the carbide insert bit are:

**a.** The carbide bit requires more attention in its care and use than the steel bit. This means that an educational program is required to acquaint the contracting field with carbide-bit correct practices.

**b.** The bit continues to drill after it has passed its so-called "dull point." It is beyond this "dull point" that the greatest abuse to the carbide bit is encountered because of the extreme reaction blow that results when 4 worn inserts ($\frac{3}{16}$ wide on top) hit hard rock. There was a tendency in the beginning to use the carbide bit to destruction before considering regrinding, simply because it continued to drill rock; but no consideration was given to the loss of drilling speed.

### Effective use of bits

As the carbide-insert bit becomes more widely used, additional valuable data will be accumulated. At the present time we can draw a few conclusions regarding the proper use of these tools. One important rule is to limit the amount of footage between grinds; another is to control the quality of drill steels and the threads on the steel drilling rods.

It has been our experience that on large jobs the contractors usually appoint a capable man, who becomes completely responsible for the bit inventory, controlling the amount of drilling between grinds, resharpening the bits, and inspecting the drill steels. This practice may seem costly and yet this man will justify his expense very quickly.

The operators of the wagon drills can be instructed to recognize when a carbide bit is dull and they can also be instructed to check the quality of threads on the drill steels. Most drillers have been found to be very cooperative about using carbide insert bits.

### How To Use Carbide Bits

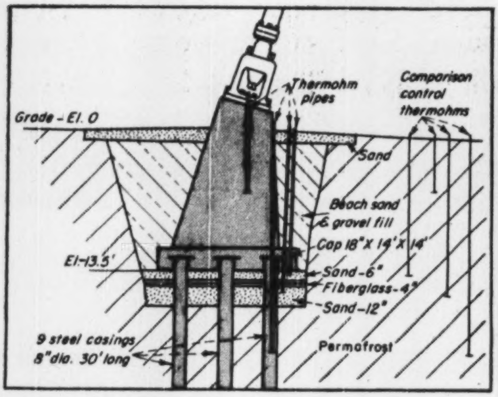
**The carbide-insert bit will give the lowest cost per foot of drilling if these simple rules are followed:**

**1. Remove the bits with pipe wrenches. Do not use hammers; the carbide might crack or chip from a careless blow.**

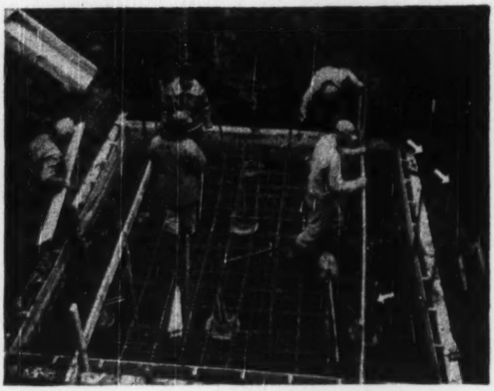
**2. Check the threads on the drill steels every day to prevent distortions. It is possible for the carbide bit to outlast the life of the drill steel, especially under severe drilling conditions.**

**3. When to resharpen: Resharpen when a 1/8-in. to 3/16-in. wide flat is worn across the top surface of the carbide insert. Measure this flat at the outside gage point of the insert. This wear will appear in 35 ft. of drilling in quartz or ganister; or in 400 ft. of drilling in shale or Manhattan Schist.**

**4. How to resharpen (refer to illustrations): Use a standard bench grinder with a silicon carbide grinding wheel on one end, for the resharpening of the inserts, and a standard steel-cutting wheel on the other end, for relieving the steel. In resharpening, try to restore the bit to its original shape and clearances. The included angle of the carbide is 105 deg. and the side clearances vary between 2 and 3 deg.**



**HEAVE-PROOF DESIGN.** Insulation beneath pile cap prevents thawing-freezing cycles in permafrost, with resulting frost-heave on foundation. Piles, frozen in, give additional stability.



**TESTING THE DESIGN.** Heat of hydration from pile-cap concrete will test effectiveness of insulation. Pipes (arrows) contain heat-measuring devices for check on thermal conditions.

# Arctic Tower Foundations Frozen into Permafrost

Cdr. P. W. Roberts, CEC USN and Lt. Cdr. F. A. F. Cooke, CEC USN
Bureau of Yards and Docks
Washington, D. C.

MAKING even a single foundation stay put in permafrost calls for Arctic engineering know-how. Much more difficult is the task of fixing four foundations so that no differential settlement will occur among them.

In 1947 such an assignment faced Bureau of Yards and Docks engineers and constructors who built a large four-legged steel tower in northern Alaska. Today, after the seasonal changes of two years, the tower stands firm, with no evidence of foundation elevation differentials.

Steel-pipe piles frozen into the permafrost, together with careful insulation against permafrost-thawing, are the essential features of the job's success.

The terrain of this northern Alaska region is the typical tundra of the Arctic—a comparatively flat coastal plain surfaced with a vegetated, unstable black muck, which alternately thaws and freezes with the change of the seasons. This surface rests on permafrost—permanently frozen subsoil extending downward several hundred feet and which remains stable providing the thermal regime is not altered.

Requirements dictated that the tower be located where no competent bedrock could be reached for foundations. Consequently, the tower had to be designed for use in the permafrost, a conglomerate of frozen silt, sand, and clay, interspersed with lenses of ice. After field investigations and soil tests were conducted, a plan was evolved for supporting the 200-ton structure: massive concrete footings would provide the best solution to the problem. Accordingly, a rhombic pedestal was designed for each of the four corners of the tower. Excavation procedure was specified to prevent thawing under the concrete footings.

### Well casings are piles

The base of each pedestal consisted of a heavily reinforced concrete slab 18 in. thick by 14 ft. square. Each was set 13 ft. 6 in. below the surface, resting on and secured to nine steel well casings, 8 in. dia. and 30 ft. long, used as pilings.

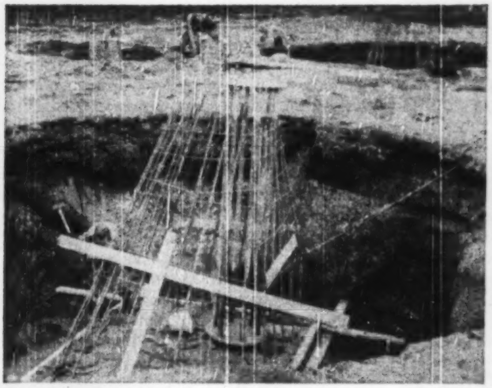
The excavation for each footing was worked down to within one foot of grade as rapidly as possible to prevent excessive thawing. Frozen material, consisting of sandy shale and frozen sand, was loosened by blasting and removed by dragline. Centers for the nine pile holes were located by template and drilled with a portable rotary rig mounted on 12 x 12-in. timbers placed over the excavation. Drilled material was removed in the usual manner by circulating drilling mud under pressure down the center of the drill pipe, around the bit and up to the surface where it was then recirculated by means of a gasoline-driven centrifugal mud pump.

By the time the piles had been set for the first footing, excavation for the second had been completed and the drill rig was moved into place above it. This process was continued for each of the four footings. By the time the piling had been set in the excavation for the fourth footing, the piling in the first had frozen in place securely. It had been determined by test that the mean adfreezing strength for a smooth steel-soil bond was 75 pounds per square inch. On this basis the total adfreezing strength of the 36 piles was ten times greater than was actually needed for basic foundation design.

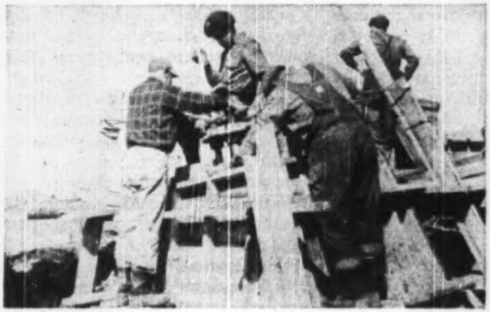
Prior to the freezing-in process, liquid mud within the pilings was forced out by a jet of compressed air and replaced with clean sand to within five ft. of the top. The casings were then burned off to grade, a steel plate collar welded to each and a single vertical section of one-inch square reinforcing steel grouted into the center.

### Insulating the permafrost

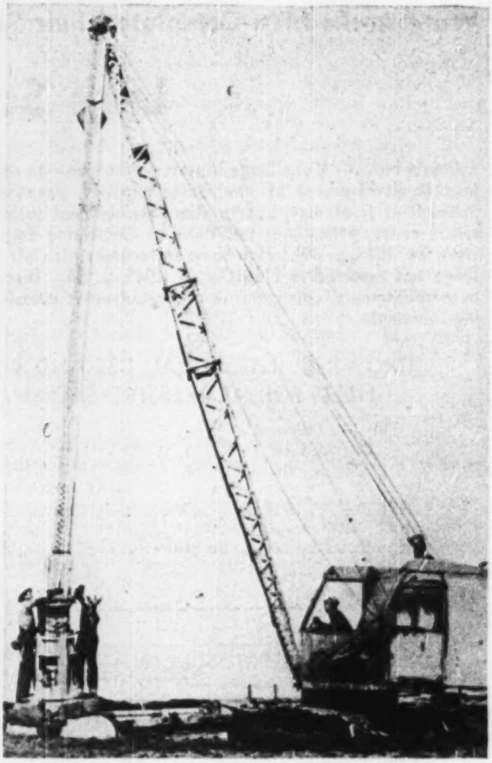
As mentioned above, excavation for each footing was left within one foot of finished grade. This was done to limit the inevitable thawing of surface material which could be removed after drilling and pile setting had been completed. After the piling was securely frozen in, the excavation was worked down to finished grade by



TOWER-PEDESTAL STEEL in place on pile cap. Anchor-bolt assembly stands loosely inside.



SETTING ANCHOR BOLTS. Pedestal concrete was placed in three lifts. When temperatures dived, work was protected by aviation-type preheaters under tarpaulins.



FIRST TOWER LEG held up by crawler crane. Once high steelwork got under way, ground-to-tower communications were maintained by walkie-talkie.

jackhammer and hand shovel. A one-foot layer of clean, dry beach sand was then laid and topped by two (2-in. each) layers of glass-fiber insulation totaling 4 in., plus an additional 6-in. layer of sand.

Prefabricated forms and reinforcing steel for the slab were erected directly on this sand base and anchored to the piling by welding. Concrete for each of the footing pedestals was poured in three lifts, alternately around the tower base, with ample time allowed for the proper setting of each before the next lift was poured. Bond was secured between the sections by means of the reinforcing steel and by leaving a rough, irregular, but thoroughly clean joining plane.

Protection against frost was provided each pedestal for a maximum period of four days by the introduction of heated air from gasoline burning aviation-type preheaters under heavy tarpaulins spread over the formwork.

### Watching for thawing

Of great concern, once the foundations were poured, was the dissipation of the heat of hydration of the concrete. In order to keep advised of its effect on the stability of the subgrade and surrounding permafrost, four temperature pipes were located at various positions in the subgrade, piling and footing. Electric-resistance type "thermohm" units with electric cables were lowered into the pipes and the temperature read daily. Additional pipes were located in an undisturbed area and readings were made at similar depth to establish comparison controls.

### Wellpoints removed water

It soon became apparent that the heat generated by the chemical reactions taking place in the pedestals was thawing the permafrost, for water began to accumulate around the foundations. Accordingly, it was necessary to drive wellpoints around each footing to remove excess moisture, to insure that there would be no heaving once the foundations temperatures came to equilibrium with the surrounding soil. Thereupon, daily level readings were taken to detect any possible heaving or settlement, and pumps were manned continuously to insure that the footings were dry at all times. These precautions were particularly important, since a differential of ½ in. or more between any of the foundations would overstress large ceramic insulators at tower-leg bases, and threaten failure of the entire structure.

Once the footing piers had been frozen in solidly and accepted as safe, the structural steel work of the tower proper was carried out in the usual manner, the only novel features being the use of a basket boom to raise tower sections and a "walkie-talkie" for ground level to work level communications.

Reports from the site indicate that the tower and its supporting foundation have withstood the alternate freezings and thawings of two Arctic winters and summers without any measurable displacement of the structure—thus proving the soundness of the design which was evolved, and the quality of the work done by construction forces at the site.

### Waterworks Men Complete Their Say About . . .

# Let's Sell Water

**Editor's Note: A challenge to waterworks men—to educate the public and lead in development of new water supplies, encourage new and better methods of treatment, and to stimulate metered sales as well as greater-return consumption—was laid down by Consulting Engineer Farley Gannett (Nov. 24, 1949, p. 39). How some waterworks officials reacted to this challenge was reported in ENR Dec. 8, 1949, p. 34. Discussion of waterworks accomplishments, opportunities and problems is completed with the following comments.**

## GROWING INDUSTRIAL DEMAND BLOTS OUT NEED FOR AGGRESSIVE SALESMANSHIP

W. W. DeBerard
City Engineer
Chicago, Ill.

"LET'S SELL WATER" is a provocative article, well calculated to make any waterworks official re-examine his philosophy for selling water. Its theme seems to be that waterworks men are highly unprogressive utility operators who—if they emulated their brethern in electric, gas or telephone fields—would have no difficulty in revolutionizing "plants and physical methods of obtaining and supplying water and of selling it." Municipal ownership is advanced as one of the reasons for this unprogressiveness.

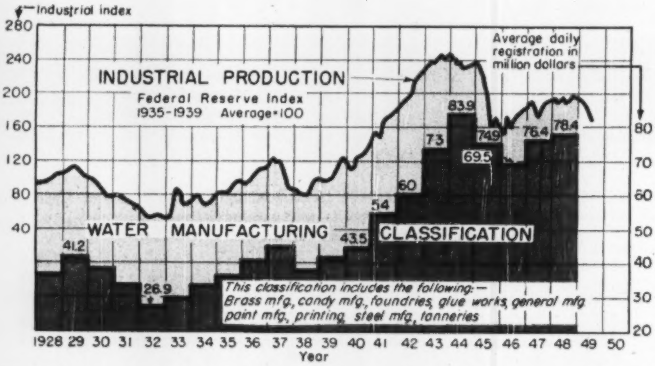


Fig. 1. Because of a steadily increasing demand, super-salesman for water are not needed in Chicago.

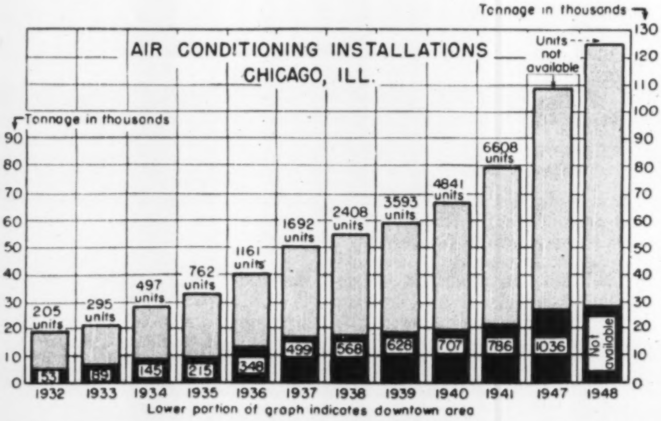


Fig. 2. Air-conditioning tonnage in Chicago has increased about 650 percent in 18 years.

Does Mr. Gannett attach any significance to the fact that private companies operating both water and electric plants have displayed this same singular lack of salesmanship of water, while at the same time greatly increasing their sales of power? Does he believe that the continued sale of privately owned water plants to municipalities reflects anything other than the disposal of utilities whose possibility for business development are of a low order?

The cold facts are that all utilities are not the same breed of cats. There are certain fundamental differences which must be recognized in the comparison. Sales development possibilities differ. If Mr. Gannett believes that "lack of progressiveness" is the major factor in failure to promote increased sales for a utility, he could acquire a highly lucrative practice by demonstrating the converse of this in the traction field.

Mr. Gannett refers to Chicago's failure to meter its domestic consumers. This is true of small consumers, but Chicago today sells 54 percent of its total daily pumpage through meters. If unaccounted for water be assumed at 15 percent, then unmetered and free water represents 31 percent of the total pumpage.

Chicago will be asked to give serious consideration to metering its remaining services when it can be demonstrated that—with present high labor and material costs and with one of the lowest meter rates in the United States—installation of meters will produce savings in plant operating expenses which will more than offset cost of reading, billing and repairing additional meters together with fixed charges on the installations.

### Use increases without promotion

Among other things, Mr. Gannett advocates sales campaigns by waterworks officials to increase demand for water.

In a large industrial and commercial city like Chicago there is a natural and ever-increasing demand for water; no super salesmanship is needed to stimulate demand.

Our problem is to be ready to meet demand when it occurs. We have met it. Fig. 1 shows how rising industrial activity increases demand for water, and how well this demand has been met in Chicago.

There has been a tremendous increase in Chicago's air-conditioning demand without any sales effort by waterworks officials.

As of Dec. 31, 1932, in the entire City of Chicago, there were about 20,000 tons of air-conditioning equipment (Fig. 2). As of Dec. 31, 1941, inclusive, air-conditioning tonnage and demand for cooling water had increased 300 percent. As of Dec. 31, 1948, air-conditioning equipment had increased to about 125,000 tons, or an increase of 56 percent from 1941 to 1948. This indicates that no sales efforts by waterworks officials is needed for stimulating air-conditioning consumption.

## HOW TO COLLECT FOR LAWN SPRINKLING

Melvin P. Hatcher
Director, Water Department
Kansas City, Mo.

The keystone reference in "Let's Sell Water" is to the waterworks industry's deliberations on the problem of the growing air-conditioning demand.

In weighing the author's comments on this point, it should be borne in mind that (1) these demands have had their greatest growth in the last few years; (2) the industry has been giving diligent and continuous study to this matter during these years; (3) the time that is being taken to arrive at complete answers is not excessive in light of the problem's complexity and other demands on the industry; and (4) viewpoints expressed to date are tentative and not final. Those within the industry know the strides that have been made and are proud of the progress.

Mr. Gannett echoes published views of the waterworks industry when he singles out air conditioning and lawn sprinkling as classes of service most in need of special consideration in water-rate structures. Each of these classes of service is affected by load factors—ratios of average to maximum daily and to hourly demands. These ratios are lower than ordinary household and most industrial service; each accounts for appreciable percentages of total demand in most sections of the country.

An article (Something New in Water Rates, M. P. Hatcher Water and Sewage Works, May 1947) points out the need for a more positive method of giving effect to the higher cost of water used in lawn sprinkling. A water-rate form was proposed that would go a long way toward accomplishing this purpose. This rate is in two parts and is set up in Table I.

Mechanics of the proposed-rate plan are explained in Fig. 3. For illustrative purposes, costs under the industrial rate are graphed for only three small-meter sizes. Other costs would vary by differences in respective service charges. Explanation of reasons for the minimum charge in the residential rate and a service charge in the industrial is an interesting feature of the original article. The main point is that nearly all water used for lawn sprinkling would be sold at the highest step in the rate. In the application plan, commercial and industrial customers using one-inch meters and less would be allowed a choice of rates. Those having consumptions below point of equal cost for this meter size would use the residential rate; those having consumptions above this point and all commercial and industrial customers using meters 1½-in. and larger in size would be billed by the industrial rate.

As far as is known, nothing similar to this rate structure has as yet been used in actual practice. Some further study will be needed—particularly of range of revenue inadequacy from lawn-sprinkling service in various parts of the country—before justification for such a departure from present water-rate practices can be demonstrated. The waterworks industry's

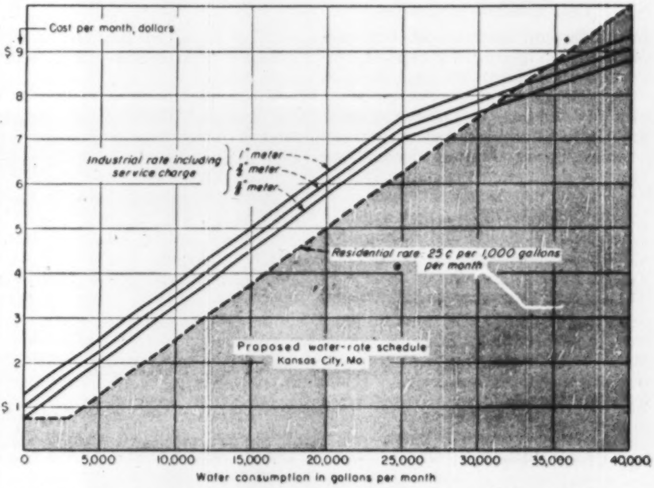


**Fig. 3. A unique water-rate schedule—proposed for Kansas City, Mo.—would bring in additional revenue by charging the most for lawn sprinkling.**

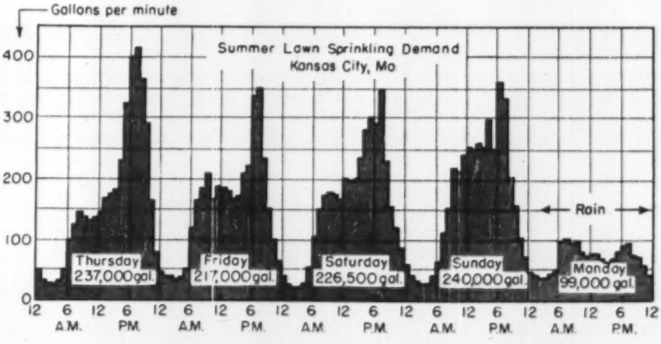


**Fig. 4. Maximum day-and-hour Lawn-Sprinkling consumption in Kansas City is about 300 and 600 percent, respectively, of average usage (two residential areas).**

**TABLE I—PROPOSED WATER-RATE SCHEDULED FOR KANSAS CITY, MO.**

| | |
|---|---|
| **Residential Rate** | |
| For all water used per month | $ .25 per 1,000 gal. |
| Minimum bill: ⅝-in. meter | .75 per month |
| ¾-in. meter | 1.00 per month |
| 1-in. meter | 1.25 per month |
| 1½-in. meter | 2.25 per month |
| **Industrial Rate** | |
| For the first 25,000 gal. per month | 25¢ per 1,000 gal. |
| for the next 225,000 gal. per month | 10¢ per 1,000 gal. |
| For all over 250,000 gal. per month | 9¢ per 1,000 gal. |
| Plus a service charge based on meter size: | |

| | | | |
|---|---|---|---|
| 1-in. meter | $1.25 per month | 3-in. meter | $6.50 per month |
| 1½-in. meter | 2.25 per month | 4-in. meter | 10.00 per month |
| 2-in. meter | 3.50 per month | 6-in. meter | 18.00 per month |

committee—the Committee on Water Rates of the American Water Works Association—is giving just that kind of study of water-service-rate problem.

### Lawn-sprinkling consumption

Studies of demands of two predominantly residential groups of consumers in Kansas City have revealed that the maximum to average ratios for day and hour in a year was about 300 percent and 600 percent, respectively. Typical summer demands of one of these groups is shown in Fig. 4. For normal household usage these ratios are near 150 percent and 225 percent. Taking this latter consumption out of test figures, it appears that ratios for lawn sprinkling alone may be about 600 percent and 1,200 percent respectively. This wide disparity in reliance on plant and mains points to the need for special consideration for this class of service.

It is my belief that eventual solution of air-conditioning-rate problem will be found in the proper water rates for such service—not in restrictions of use.

These matters are being studied by the American Water Works Association. I feel certain that its committees—will arrive at a satisfactory solution of the problem.

From preliminary studies in Kansas City, water for air conditioning has been found to have maximum to average ratios for day and hour of about 500 percent and 1,000 percent respectively.

## NEW SUPPLY COST MAY BE DOUBLED

**E. J. Taylor**
**Chief, Bureau of Water**
**Philadelphia, Pa.**

"Let's Sell Water" should be studied carefully by every waterworks official so that he may select those portions applicable in this community.

Theoretically, the applicability may be far different in a private than in a municipally owned company. A private company official may operate as in any other business, expanding sales to the limit and investing funds required to get the greater volume of business on which a return is considered their right. Rates may be adjusted, with approval of state regulatory commissions only to return a profit.

The municipal official is obligated to provide water at lowest rates consistent with first-class service and to furnish water where it is necessary to development or expansion but limiting use where added quantities are not essential. This is so, particularly where delivery of large quantities will result in unbalancing of supply and demand that will require great expenditures for correction, and cause rate increases. To promote use that requires expansions is wilful waste, if the same ends can be served by less use.

The fact that high rates will drive away industry and that the waterworks will eventually reflect the economy of the community also limits extent to which the private company may promote sales. Private and municipal officials therefore should consider both development of the community and, in promotion, whether proposed water use will produce a return to the community. A return because of reduced rates, or, if rates must be increased, a return in expanded industry or commercial activity, is essential.

Much of Mr. Gannett's logic is applicable to waterworks having ample capacity to deliver, or which may secure sufficient capacity at reasonable cost. However, effect of continued future expansion should be borne in mind. It is frequently not true that the more water sold the cheaper the price. This is illustrated in extremes to which many cities are forced, to develop new sources—at costs more than double the utility's investment per million gallons capacity.

### Secondary purposes must be considered

A secondary purpose of a community water system is to operate an adequate sanitary system that will maintain public-health conditions. Secondary uses are desirable in proportion to their benefit to the community. When secondary uses increase costs or restrict needed supplies—so that the sanitary requirements are not adequately met—then this use must be cut down.

With more than 30 percent of our urban population in communities that cannot guarantee to serve present normal growth now, or for more than a few years to come, expansion costs and resulting rate increases are vital. True, we have a necessary product to sell and rates are now disproportionately low. It is also quite true that there has been a great lack of salesmanship by waterworks men—a lack of selling to the public as well as to municipal officials. It is this which makes the task of securing adequate or improved supplies so difficult.

It requires 10 to 20 years to produce major increases in supply or in distribution-system capacity in large, dense business centers. In the meantime, many communities cannot meet unrestricted increases in demands.

In Philadelphia, where more than 50 percent of services are metered, there are hundreds of miles of small pipes, largely under car tracks, in streets so crowded with utilities that there is no other available location for larger mains. If a large, uniformly distributed increase in demand is permitted, sanitary requirements of large areas will not be adequately met. If an intensive program of rebuilding the distribution system were started now, it would be years before an unrestricted demand could be met.

Mr. Gannett's criticism of various suggestions for conservation of air-conditioning cooling water and his suggestion instead, that "the price should be high", overlooks many vital facts of the situation:

1. In practically all systems, at today's rates and on installations of over 10 tons, it is most economical to install conservation. Appreciably higher rates would cause conservation only on most of the smaller sizes.
2. Higher rates on conserved

use would tend to reduce sales and new installations.

3. Conservation adds but a small amount to the installed cost of a system.

4. Total sales volume will not be reduced by application of practical conservation measures. Manufacturers' representatives have agreed that there would be no appreciable effect.

The waterworks official is working for the benefit of the entire community, including air-conditioning manufacturers and salesmen, by promoting conservation either by regulation or by higher rates for non-conserved or peak usage. And there is ample justification for either of these. Higher rates for all air-conditioning water would be discriminatory and would reduce sales of such equipment.

Mr. Gannett points to several instances of industrial water supplies separate from the sanitary or domestic supply. This is a most desirable trend and is a fertile field for the type of aggressive development suggested. It is, of course, not applicable to such uses as air-conditioning and lawn sprinkling.

## COSTS AFFECT A CITY'S ECONOMY

**Louis E. Ayres**
**Consulting Engineer**
**Ann Arbor, Mich.**

No one should approve sale of water through flat rates where metering can be economically justified. The extent to which meters have been installed, country-wide, indicates a general acceptance of their use by the industry. The failure of certain large cities to meter domestic consumers hardly warrants the blanket observation that "metering offers a new source of water supply that has hardly been tapped."

Water works managers generally, and the organized industry are, and have long been, alert to needs for adequate water supplies for all legitimate uses, including industrial, air-conditioning and sprinkling. Many cities are constantly engaged on long-term planning in anticipation of their needs. But at the same time they are concerned—and properly so—with water waste and proper charges for commodity supplied and services rendered.

The waterworks business is not comparable with electric and gas industries insofar as its raw materials are concerned. There is no limit to amount of gas and electricity than can be produced. But in great areas of our country, available supply of water is limited. Michigan, surrounded by the Great Lakes, has unlimited raw water; Texas possesses a huge gas supply. Texas gas may be brought to Michigan, but Michigan water could hardly be transported to Texas.

Costs must be taken into consideration in the water-supply business. When Mr. Gannett refers to a new supply for a Caribbean City where "the cost will be more than $1.00 per 1,000 gallons", one cannot but ponder the effect of such a cost on Detroit, for example, and on its industries. That Caribbean city will not produce many automobiles for the world's markets.

It is not always true with water supply "that the more of a product that is sold, the cheaper the price". Although electric rates have gone down "because ways were found to increase consumption and decrease production cost", the kilowatt-hour is the same old product. With water the gallon originally supplied was the raw stuff; now it is purified and softened to meet rising standards of health and comfort.

## END USE OF WATER SHOULD DETERMINE PRICE

**W. J. O'Connell, Jr.**
**Chemical Engineer & Industrial Consultant**
**San Francisco, Calif.**

The article, "Let's Sell Water", and the many discussions of Mr. Gannett's views serve as evidence of need to re-orient some of the traditional philosophy of municipal water-utility management. The discussions also re-emphasize the importance to our national economy of dependable urban water supplies and of anticipating their increased usage to stimulate industrial development.

A large part of the nation's agriculture is made possible by irrigation in the arid west, at costs permitting competition in eastern markets. Similarly, large cities could not have developed in the West's arid localities unless municipally operated supply projects were financed, constructed and operated through distribution of costs among all those benefitted by taxation, in addition to service charges for water.

In our system of free enterprise, the undertaking of water-utility operations by a municipality can be justified only when scope of the undertaking is such that it cannot be accomplished by private financing or when, as in development of irrigation projects, a principal purpose of the undertaking is to support an area's economy.

Quite logically, pricing of water to domestic consumers can be based upon value of service rather than value of the water. If one translates value of this service into cost per thousand gallons, it is seen that few domestic consumers pay less than 5¢ per thousand gallons, most pay over 20¢, and many pay as much as 40¢ per thousand gallons.

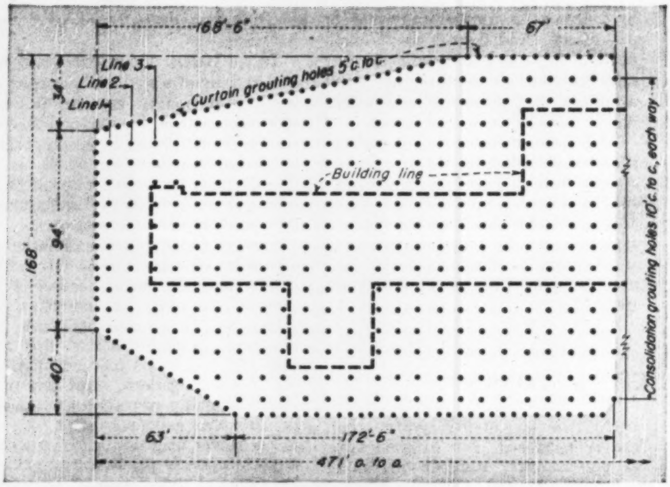
To deliver irrigation water at maximum rates of 2¢ per thousand gallons has required recognition of attendant multiple benefits of flood control, erosion control, power generation and improvement of navigation when working out plans for project financing. In effect, water which is sold to agriculture is sold as a raw material and priced on "what the traffic will bear" rate schedules.

### Water is a raw material

We have grown from a nation whose economy was based upon agriculture to one whose economy is equally based on manufacturing. Large water using industries are the ones that bring large payrolls to an area. For that reason—more than any other—they are vital to the economy. Forward-thinking leaders in all centers of concentrated population are concerned with bringing in new industries and expanding those which already exist. One major factor in industrial expansion is availability of adequate supplies of water at a rate which will enable industries to market their products at competitive prices. To these industries, water is a raw material—not a service.

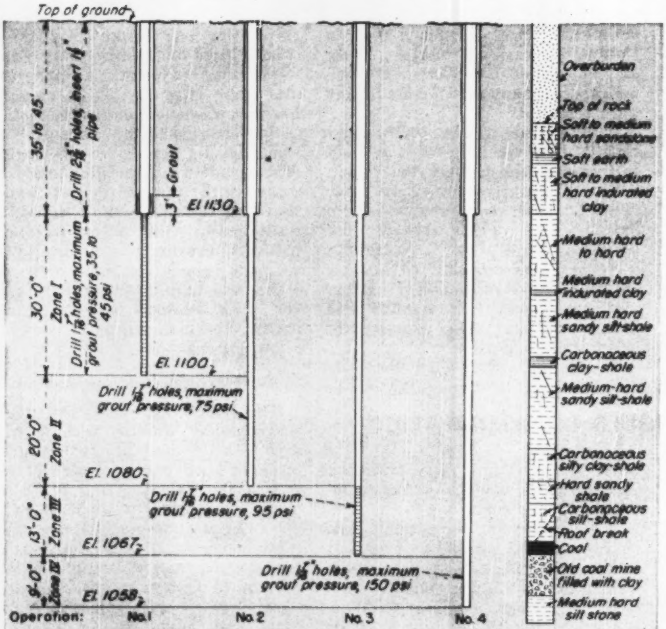
### New organizations needed?

The waterworks industries might well consider whether meeting this need is a responsibility to be undertaken by their existing organizations. It may be that rendering of "silent service", necessary to development of our cities, is a different business from transporting water as a raw material to industrial users. Certainly, in arid portions of western and south-western states, industry must depend more and more upon public utilities for water supplies. If these areas are to support their growing population, industry must be assured of adequate, low-priced supplies.


168'-6"
67'
Line 3
Line 2
Line 1
Curtain grouting holes 5' c. to c.
Building line
34'
94'
168'
40'
Consolidation grouting holes 10' c. to c., each way
63'
172'-6"
471' o. to o.

CONSOLIDATION GROUTING of the entire 471x168-ft. site—through holes spaced 10 ft. each way—was carried on inside an established curtain of grout encircling the area.

# Subsurface Grouting Of a Hospital Site


Top of ground
35' to 45'
Drill 2⅝" holes, insert 1½" pipe
Grout
3'
El 1130
30'-0"
Zone I
Drill 1⅞" holes, maximum grout pressure, 35 to 45 psi
El. 1100
Drill 1⅞" holes, maximum grout pressure, 75 psi
20'-0"
Zone II
El. 1080
Drill 1⅞" holes, maximum grout pressure, 95 psi
13'-0"
Zone III
El. 1067
Drill 1⅞" holes, maximum grout pressure, 150 psi
9'-0"
Zone IV
El. 1058
Operation:
No. 1
No. 2
No. 3
No. 4
GROUTING SCHEDULE
Overburden
Top of rock
Soft to medium hard sandstone
Soft earth
Soft to medium hard indurated clay
Medium hard to hard
Medium hard indurated clay
Medium hard sandy silt-shale
Carbonaceous clay-shale
Medium-hard sandy silt-shale
Carbonaceous silty clay-shale
Hard sandy shale
Carbonaceous silt-shale
Roof break
Coal
Old coal mine filled with clay
Medium hard silt stone
TEST HOLE

CONSOLIDATION PROGRESSED DOWNWARD from El. 1130 to El. 1058, by successively grouting Zones, I, II, III and IV. Grout pressures were increased with the depth of hole, reaching a maximum of 150 psi. for filling the old coal mine.

When Pennsylvania coal miners abandoned one of their workings 105 ft. below the University of Pittsburgh campus, some time around 1850, they would not have believed that technological developments would permit reconsolidation of the area, by drilling and pressure-grouting.

But the Corps of Engineers has done just that. It has pressure-grouted a 471 x 168-ft. area, to an average depth of 107 ft., to support the new 11-story, 750-bed Veterans Administration General Medical Hospital in Pittsburgh, Pa.

The problem was not simply one of drilling through the 100 ft. of overburden and filling the old coal mine with grout. The entire area had to be grouted from the top of a stratum of medium-hard shale at El. 1130 (bottom of proposed foundation caissons) to El. 1058, about 2 ft. below the bottom of the coal seam containing the abandoned mine.

It was a costly job—the contract price was $383,000, but overruns in the amount of grouting required boosted the total contract cost to nearly $500,000. The site was considered so desirable by the Veterans Administration, however, that the expense of reconsolidating the area was deemed justified.

**• Preliminary exploration**—Subsurface core borings with 30-in. diamond drills showed the abandoned tunnels to be filled with broken shale, slate and other refuse from the old mine workings. The overlying strata of shale, indurated clay, slate and other rock formations also were faulted and cracked. In some areas the roofs of the old tunnels had collapsed, setting up a rifling action in the superimposed rock extending nearly to the ground surface.

Following complete and thorough exploratory studies of the subsurface formations, a contract for drilling and grouting the area was awarded last June, with 180 days for completion. It involved 910 holes, 232 of which were drilled on 5-ft. centers around the site to establish a curtain of grout, and the remainder at 10 ft. spacings each way over the entire area, for consolidation grouting.

Starting at ground level (El. 1165 to 1175), 2⅝-in. holes were drilled to El. 1130. A 1½-in. i.d. pipe was inserted in each 2⅝-in. hole, with its bottom 3-ft. being embedded in grout and its top extending about 2 ft. above ground level. These pipes served as temporary casings for drilling the 1⅞-in. grouting holes on down to El. 1058. All but the bottom 3 ft. of them were removed after the grouting was completed.

**• Grouting**—All grouting was done from the top down—the old mine tunnels being grouted last. Drilling and grouting was performed in four zones. Zone I extended from El. 1130 to El. 1100: Zone II from El. 1100 to 1080; Zone III from El. 1080 to 1067 and; Zone IV from El. 1067 to 1058.

First operation was that of curtain-grouting all four zones across the west end of the site and along the two sides. The east end was not closed with a curtain of grout until the last, to permit drainage of the area.

Curtain-grouting holes were drilled by the split-spacing method. That is, the first ones were drilled and grouted on 20-ft. centers. Additional, intermediate holes then were drilled and grouted, first reducing the spacing to 10 ft., then to 5 ft.

The curtain-grouting holes were drilled, and the surrounding area was grouted, progressively through the four zones. After a hole had been drilled through a zone, it was washed and pressure-tested. The surrounding area then was consolidated by repeated injections of 150 bags of grout, each of which was allowed to set 4 or 5 hours before the next 150-bag injection. Consolidation holes were grouted in a continuous operation for each zone. Holes were flushed clean before the grout took its initial set.

It was not necessary to complete the curtain-grouting through all four zones before beginning the consolidation grouting from the interior holes. In fact, specifications permitted simultaneous curtain and consolidation grouting. But the latter was not begun until an area 200 ft. long had been enclosed on three sides with the curtain of grout, extending down through all four zones.

**• Consolidation grouting sequence**—The sequence of drilling and grouting the interior holes sounds complicated. Yet it was set up to insure progressive and maximum consolidation of the subsurface formations. In general, the procedure was this:

Beginning at transverse line No. 2, inside the curtain of grout along the west side of the site, consolidation of Zone I was performed by drilling and grouting the even-numbered lines of transverse holes, skipping the odd-numbered lines.

After three such transverse lines (Nos. 2, 4 & 6) had been drilled and grouted through Zone 1, grouting of Zone II was started along the same even-numbered lines. At the same time grouting of the even-numbered lines in Zone I continued on east and was kept at least 40 ft. ahead of Zone II grouting. Consolidation of Zone III, through the even-numbered lines of holes followed in similar fashion.

When all even-numbered transverse lines had been drilled and grouted, through the first three zones for a distance of 110 ft. from the western grout curtain, drilling and grouting of the odd-numbered lines was begun. Starting with line No. 1, this work progressed both easterly across the site and progressively downward through Zones I, II and III. The sequence of drilling these lines of holes was the same as for the even-numbered holes.

**• Grouting Zone IV**—Drilling and pressure-grouting of Zone IV was begun when Zones I, II and III had been completely grouted for a distance of 100 ft. from the west grout curtain. No skip-spacing was followed in grouting Zone IV—each transverse line of holes at 10-ft. spacing was drilled, pressure tested and pressure grouted as operations moved eastward across the site.

In general, the grouting of the even-numbered lines of holes was kept 110 ft. ahead of grouting the odd-numbered lines in the first three zones which, in turn, was kept 100 ft. ahead of grouting Zone IV. The grout was conventional portland cement and water, with an average mix of 0.7 cu.ft of water per bag (cubic foot) of cement.

**• Nineteen miles of drilling**—The contractor's major equipment for this job of drilling nearly 7 miles of 2 5/16-in. holes and drilling and grouting over 12 miles of 1 7/16-in. holes included:

Three 10-hp. electric diamond drills and two compressed air drills, mounted on wagon-drill carriages; two 500-cfm. diesel-powered and one 315-cfm. electric compressors; two electric water pumps—one to stage the city water pressure up to 190 psi., and the other to boost it to 500 psi.; four 25-cu.ft. grout mixers operating in pairs to serve two 25-cu.ft agitators, all electric powered; and two 15-hp. electric grout pumps.

In addition he maintained two skid-mounted 25-cu.ft. relay grout agitators—one operated by air and the other by electricity. The grout mixers were housed in two cement-storage buildings each equipped with a 5-hp. conveyor for charging bag cement into the mixers.

These conveyors were great labor-savers since, with their aid, four men could charge 1,500 to 2,000 bags of cement into a set of mixers in an 8-hr. shift. The job was operated on a 24-hr. basis, employing a 65-man total crew for the three 8-hr. shifts.

**• Pressures**—Grouting pressures increased with the depth of the holes. Maximum consolidating pressures were: 35 to 45 psi. in Zone I, 75 psi. in Zone II, 95 psi. in Zone III and 150 psi. in Zone IV. Curtain grouting pressures were held to about 25 percent less than those used for consolidation grouting, in the respective

## TABLE OF CONTRACT QUANTITIES AND PRICES

| Item | Quantity (Estimated) | Unit Price | Amount |
|---|---|---|---|
| Drilling 2 5/16-in. grout hole, coring or non-coring | 35,000 l.f. | $1.15 | $40,250 |
| Drilling 3-in. hole, coring and boxing | 1,000 l.f. | 5.00 | 5,000 |
| Drilling 1 7/16-in. grout hole, coring or non-coring | 65,520 l.f. | 0.80 | 52,416 |
| Furnish and set 1 1/2-in. pipe | 35,000 l.f. | 0.20 | 7,000 |
| Washing and pressure testing holes (each) | 3,640 | 3.00 | 10,920 |
| Cleaning grout holes (each) | 2,730 | 2.00 | 5,460 |
| Connecting grout machine to hole (each) | 3,640 | 2.00 | 7,280 |
| Furnishing cement: | | | |
| 1st 50,000 bags (each) | 50,000 | 0.93 | 46,500 |
| 2nd 50,000 bags (each) | 50,000 | 0.90 | 45,000 |
| All over 100,000 bags (each) | 82,000 | 0.88 | 72,160 |
| Grouting: | | | |
| 1st 50,000 bags (each) | 50,000 | 0.60 | 30,000 |
| 2nd 50,000 bags (each) | 50,000 | 0.50 | 25,000 |
| 3rd 50,000 bags (each) | 82,000 | 0.40 | 32,800 |
| Furnishing Intrusion grout: | | | |
| Flyash | 200 c.f. | 2.00 | 400 |
| Sand | 1,000 c.f. | 0.50 | 500 |
| Intrusion Aid | 600 lb. | 0.05 | 30 |
| Intrusion Grouting | 1,000 c.f. | 1.00 | 1,000 |
| Concreting present 30-in. exploratory holes | 55 c.y. | 20.00 | 1,100 |
| Contract Total (Estimated) | | | $382,816 |

**TWO MIXING PLANTS assured a continuous and ample supply of grout. Each contained twin 25-cu ft grout mixers housed in a cement shed, a 25-cu ft job-made agitator and a 15-hp. grout pump.**

zones. Pressures were closely controlled by automatic switches.

As would be expected, some holes took more grout than others. But the range in volume of grout pumped into the various holes seems incredible. The worst hole took 6,000 cu ft of grout, while one group of 37 holes extending through Zones I, II and III took an average of only 27 cu ft of grout for each 63-ft. hole. This was less than 0.5 cu ft of grout per foot-depth of hole.

The interflow of grout also was a curious phenomenon. Pressure grouting in a single hole resulted in interflow of grout to 44 surrounding holes. And in one instance the length of this interflow was observed to be 200 ft.

• **Job headaches**—The job was not always one of smooth, orderly procedure. Troublesome blowouts of the grout curtain along the south side of the site necessitated the establishment of a secondary curtain along the first line of holes inside the original curtain.

Diamond bits wore smooth and had to be replaced after about 500 ft. of drilling. Twelve diamond bits were lost during drilling, necessitating the abandonment of the hole in each case, and the drilling of a new one. And sometimes it was difficult to remove sections of the $1\frac{1}{2}$-in. pipe that had been inserted in the $2\frac{5}{16}$-in. holes down to El. 1130.

Ordinarily a 175-psi. water pressure is sufficient for this kind of diamond drilling. By increasing the pressure to 500 psi., however, the contractor increased his footage 50 percent.

Best day's drilling was 2,000 ft. of $2\frac{5}{16}$-in. and $1\frac{7}{16}$-in. holes in three 8-hr. shifts, using the three electric drills and one of the compressed air drills.

• **Test holes photographed**—Test borings played an important part, both before the job was started and after it was completed. Undisturbed cores were taken from the preliminary, 30-in. test holes by first consolidating the surrounding area through grout holes drilled a short distance away from each test hole. After the job was completed, 3-in. test holes were core-drilled to check on the extent and effectiveness of the grouting. Both sizes of test holes were photographed full-depth with special cameras lowered into the holes.

Plans, specifications and the sequence of drilling and grouting were prepared, and the contract was awarded, by the Pittsburgh District, Corps of Engineers, under Col. F. H. Falkner, district engineer, who later was succeeded by Col. Conrad P. Hardy. Wilfred Bauknight is chief of the construction division and Joseph P. Renouf, resident engineer.

A $383,000 contract for the work was held by the Cannon Diamond Drilling Co., Compton, Calif., with Frank G. Cannon, Sr., president, in direct charge, assisted by Frank G. Cannon, Jr.

Architectural firms designing the 11-story hospital are Altenhof & Bown; Mitchell & Ritchey; Ingham, Boyd & Pratt; and York & Sawyer, associated. Ralph Patt is engineer of the Veterans Administration hospital program, for the Pittsburgh District of the Corps of Engineers.

# Groundwater Supply Increased by Conservation

Conservation measures in the Louisville, Ky., area—adopted after critical water shortages in 1943 and 1944—have resulted in noticeable improvement in groundwater supply, according to Oscar L. Chapman, Secretary of the Interior.

From information supplied by the U. S. Geological Survey it appears that pumpage, which averaged 62 mgd. in 1943, has been reduced to about 32 mgd. This reduction was brought about by conservation efforts initiated in 1944 and 1945, including artificial recharge of wells with city water from the Ohio River, redesign of plant equipment, recirculation and installation of cooling towers.

A city sewer-rental law in 1947 encouraged groundwater users to consume less water; it also influenced several companies to recharge their wells with used warm groundwater as a means of disposal. This information is given in a report released by William E. Wrather, director of the Geological Survey, Department of the Interior. The report, written by M. I. Rorabaugh, district engineer, Ground Water Branch, summarizes work done in the Louisville area during 1945-49 in cooperation with the State Department of Mines and Minerals, the City of Louisville, the Louisville Water Co., Jefferson County, and the Rubber Reserve Co.

Contour maps of ground-water levels and graphs of changes in the levels in selected wells show that the water tables are rising in the "Rubbertown" and distillery areas, continue to decline slowly in the west-central part of the city, and continue to decline about 2 feet per year in the heavily pumped downtown area. In 1946, 1947, and 1948 natural recharge and pumpage were about equal, in sharp contrast to the condition in 1943 when pumpage exceeded natural recharge by about 20 mgd.

Investigations show that an undeveloped supply of about 280 mgd. is available by induced infiltration of river water in the area along the Ohio River, northeast of the city, and that about 50 mgd. is available from river infiltration and from glacial-outwash deposits southwest of the city. Moderate supplies have been developed from limestone bedrock underlying glacial-outwash material in part of the area.

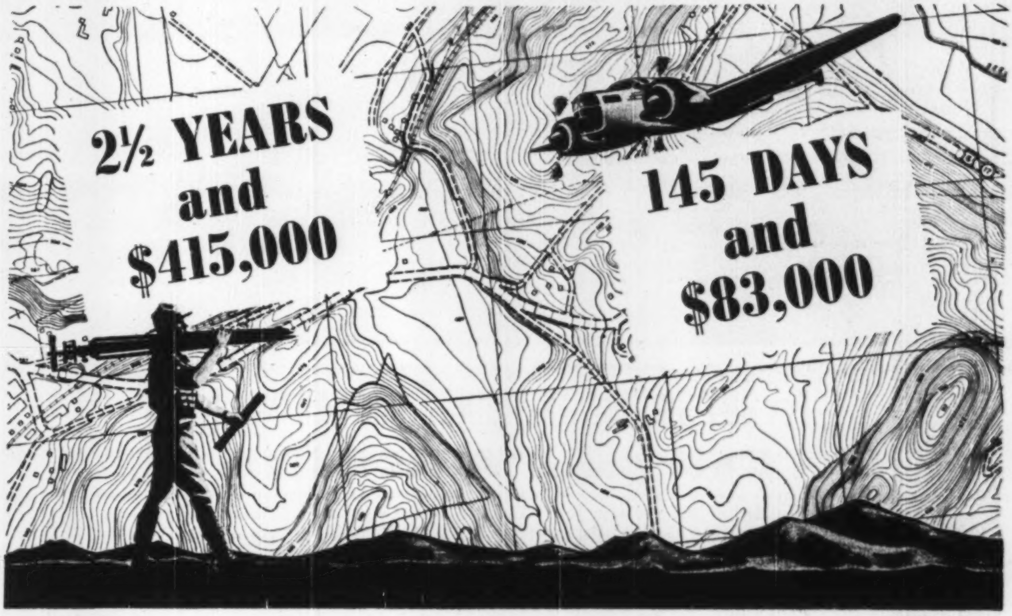
It has been demonstrated that artificial recharge can be successfully carried out by introducing city water (from the river) into both tubular and collector-type wells, and that used warm water can be recharged into wells screened in the glacial-outwash sands and gravels, the principal source of water, and also into uncased holes in the limestone bedrock.

Areas of infiltration of river water are clearly evident from chemical analyses and temperature records. The water tends to become less mineralized with continued infiltration.

In areas unaffected by river infiltration, hardness and sulfate content of the water have increased substantially since 1943, indicating an increased contribution of water from the limestone bedrock.

A limited number of mutilated copies of the report are available free from the U. S. Geological Survey, 531 Federal Building, Louisville, Ky.

What Does Your Mapping Work Cost?



TOPOGRAPHIC FACTS were needed for the Pennsylvania Turnpike's eastern extension. The transit and line method estimate was $415,000 and 2½ years' time. Too slow—and too expensive.

Aero Service mapping planes flew the 140-mile route, taking 250 photographs to be translated into accurate contour maps by photogrammetry. First maps were delivered 45 days after photography—entire schedule completed in just 145 days. Net cost of the job was $83,000, *one-fifth of the cost of ground surveys.**

*What will your mapping work cost?*

AERO can meet every map requirement—no matter where your project is located—at similar savings in time and money. AERO crews have the skill and equipment to do precision mapping for highways or cities and the worldwide experience to tackle a job of foreign exploration mapping as well. Right now our B-17 is engaged in high altitude reconnaissance in the Middle East, while additional AERO planes are successfully completing large scale explorations for oil and minerals in Canada, North Africa and other remote areas.

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**AUTHORITY: Gannett, Fleming, Corddry and Carpenter, design and location engineers for the Pennsylvania Turnpike extension.*

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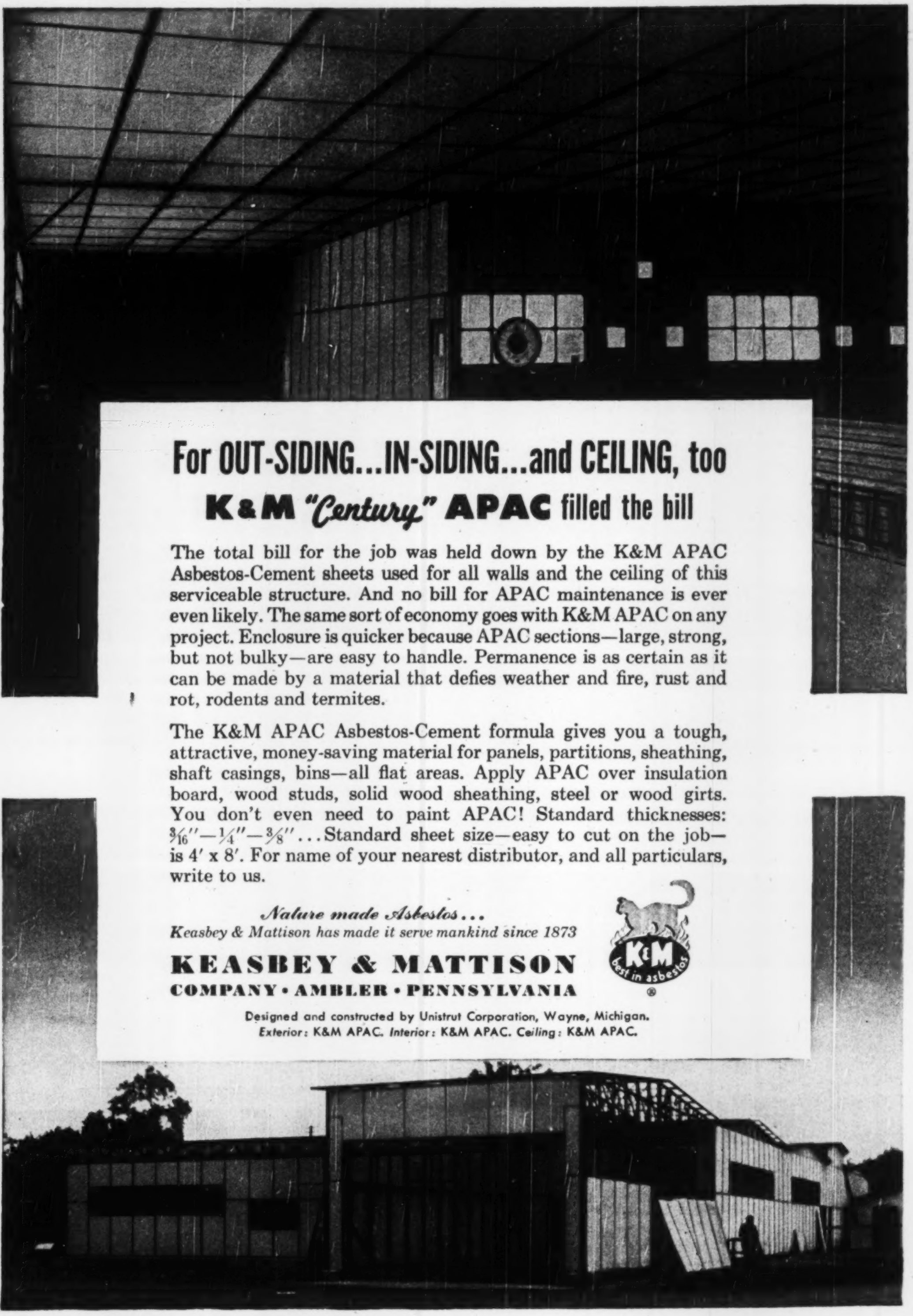

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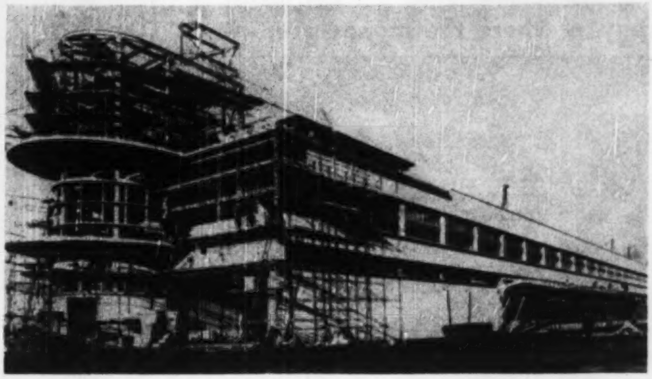
# DEVELOPMENTS ABROAD



**NEW OCEAN TERMINAL**—This new 1,000-ft. ocean terminal nearing completion at Southampton, England, will soon enable New York to London passengers on the Cunard White Star "queens" and other liners to transfer from ship to train completely under cover. It is a structure of concrete and glass, divided into three sections. At ground level the boat trains will be marshalled, cargoes worked and stores handled. The floor above will be for passengers, while the third floor is a sightseer's gallery. The terminal is being built by the Associated British and Irish Railways under the direction of R. P. Biddle. A model of the terminal has been placed on display in the Cunard offices at 25 Broadway, New York City.

## Marshall Plan countries report great progress

Year-end reports made to the Economic Cooperation Administration by top economic chiefs of countries receiving ECA aid promised the removal of trade obstructions and more energetic efforts to increase exports to North America. The participating countries were unanimous in reporting that the Marshall Plan had contributed materially to higher production and better standards of living.

Coal mines, repair of war-damaged railroads, and new power facilities top the list of Western European recovery projects financed with the aid of counterpart funds during the first 19 months of the Marshall Plan.

Industrial production in Great Britain in 1949 reached the highest point in its history, according to Sir Stafford Cripps, Chancellor of the Exchequer. He reported it was six to seven percent above the previous year and some 25 percent more than the average for the immediate prewar years.

Robert Schumann, France's foreign minister, reported that construction has begun in Lorraine on three gray steel strip mills, the largest single project in Europe financed partly by Marshall Plan funds.

That Dutch production in 1949 rose to about 125 percent of the prewar level was reported by J. R. M. Van den Brink, The Netherlands' minister of economic affairs.

For Greece, Minister of Coordination Stephan Stephanopoulos said that general economic activity showed substantial improvement. Last year $60,000,000 worth of reconstruction work was accomplished and industrial production reached a postwar high.

Chancellor Leopold Figl of Austria said that his country's industrial production capacity had again reached the 1939 levels in almost every field.

• **Italians report inflation halted**—Giuseppe Pells, Italian minister of finance, reported that Italy has halted inflationary pressures, adjusted state finances, stabilized prices, and increased production.

Supplies of Marshall Plan raw materials and machinery in 1949 made a major contribution to Denmark's increased production and exports, said Gustav Rasmussen, minister for foreign affairs.

Tage Erlunder, Swedish prime minister said that the Marshall Plan has provided the tools for democratic economic cooperation in Europe and its assistance has helped his country through a difficult financial period.

Vice Chancellor Franz Bluecher of Germany gave credit to American help for German confidence in facing the future. "Germany", he declared, "expresses the hope to other Marshall Plan countries that an economically unified Europe will be created, and Germany will exert all of its efforts towards the common goal of a free and peaceful society."

## Foreign Briefs

**No Prefab Imports**—In Brazil, as a dollar-saving measure, importation of prefabricated houses has been prohibited. The government declared Brazilian manufacturers can supply the domestic market with adequate small houses produced locally.

**Joint Conference**—To coincide with the Festival of Britain, the Councils of the Institutions of Civil, Mechanical and Electrical Engineers have agreed to hold a joint engineering conference from June 4 to 15, 1951. The purpose of the conference will be to place on record the achievements of British engineers and it will afford an opportunity for engineers from all parts of the world to discuss their particular subjects. The conference will also discuss the development of the system of education of engineers which has proved so successful in Britain.

**Dutch Hotels**—This year six hotels will be constructed by the Netherlands government, partly financed by E.C.A. dollars. The hotels will be principally for foreign tourists. One of the new hotels, capacity 200 rooms, will be built in Amsterdam, one in The Hague, two in Rotterdam, one in Arnheim and one in Middleburg.

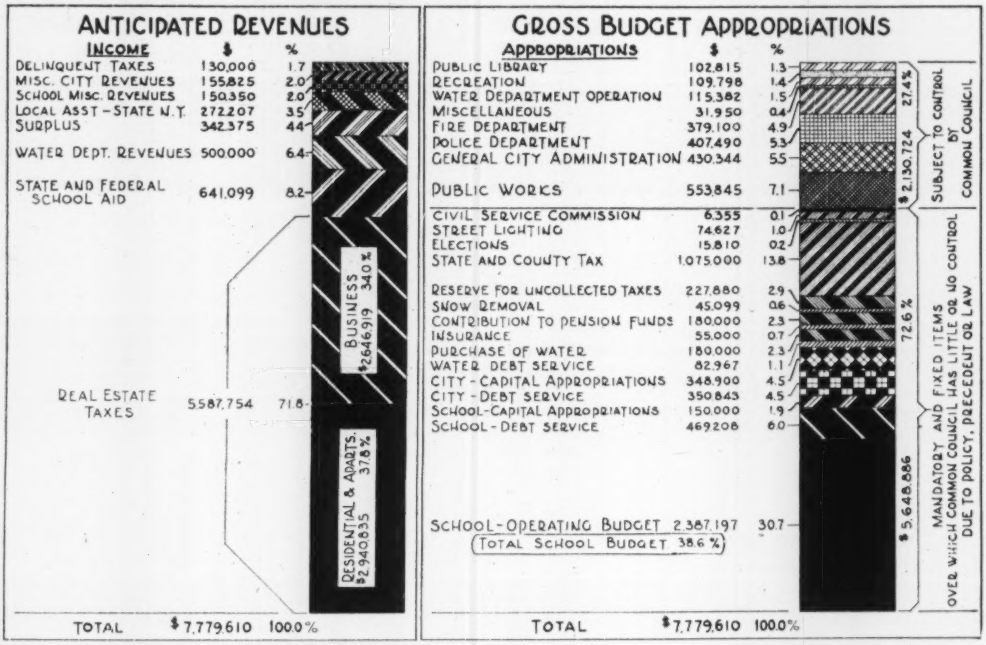
**Technical Literature Exchange**—On Jan. 1 a plan went into effect for the exchange of published scientific and technical literature among the 18 member countries of the Organization for European Economic Cooperation. It provides for the free supply from each of the governments to each of the others of up to six copies of all official documents dealing with physical and biological sciences and medical matters of interest to industry; also economic matters and statistical material relating to industrial productivity.

**Worldwide Bid Invitation**—Bids for the construction work on the 12,000,000-cu. yd. Eildon earth dam in Victoria, Australia, will be sought throughout the world, according to T. T. Hallway, premier of Victoria. The estimated cost of the work is $22,400,000, to be met either through a loan or out of Australian dollar resources if the trade balance shows further improvement. Construction work on the 50,000-kw. hydro unit at Hume Reservoir is expected to begin in April. It will supply power equally to New South Wales and Victoria.

**Petroleum Terminal**—The first bulk petroleum terminal in Australian New Guinea will be commissioned shortly by the Vacuum Oil Co. Ptd, Ltd., an American-owned company.

# MUNICIPAL AFFAIRS

## White Plains tells its taxpayers where the money goes



ANTICIPATED REVENUES

| INCOME | $ | % |
|---|---|---|
| DELINQUENT TAXES | 130,000 | 1.7 |
| MISC. CITY REVENUES | 155825 | 2.0 |
| SCHOOL MISC. REVENUES | 150350 | 2.0 |
| LOCAL ASST - STATE N.Y. | 272207 | 35 |
| SURPLUS | 342375 | 44 |
| WATER DEPT. REVENUES | 500000 | 6.4 |
| STATE AND FEDERAL SCHOOL AID | 641.099 | 8.2 |
| REAL ESTATE TAXES | 5587.754 | 71.8 |
| TOTAL | $7.779.610 | 100.0% |

GROSS BUDGET APPROPRIATIONS

| APPROPRIATIONS | $ | % |
|---|---|---|
| PUBLIC LIBRARY | 102.815 | 1.3 |
| RECREATION | 109.798 | 1.4 |
| WATER DEPARTMENT OPERATION | 115.382 | 1.5 |
| MISCELLANEOUS | 31.950 | 0.4 |
| FIRE DEPARTMENT | 379.100 | 4.9 |
| POLICE DEPARTMENT | 407.490 | 5.3 |
| GENERAL CITY ADMINISTRATION | 430.344 | 5.5 |
| PUBLIC WORKS | 553845 | 7.1 |
| CIVIL SERVICE COMMISSION | 6.355 | 0.1 |
| STREET LIGHTING | 74.627 | 1.0 |
| ELECTIONS | 15.810 | 0.2 |
| STATE AND COUNTY TAX | 1.075.000 | 13.8 |
| RESERVE FOR UNCOLLECTED TAXES | 227.880 | 2.9 |
| SNOW REMOVAL | 45.099 | 0.6 |
| CONTRIBUTION TO PENSION FUNDS | 180.000 | 2.3 |
| INSURANCE | 55.000 | 0.7 |
| PURCHASE OF WATER | 180.000 | 2.3 |
| WATER DEBT SERVICE | 82.967 | 1.1 |
| CITY - CAPITAL APPROPRIATIONS | 348.900 | 4.5 |
| CITY - DEBT SERVICE | 350.843 | 4.5 |
| SCHOOL-CAPITAL APPROPRIATIONS | 150.000 | 1.9 |
| SCHOOL - DEBT SERVICE | 469.208 | 6.0 |
| SCHOOL-OPERATING BUDGET | 2.387.197 | 30.7 |
| TOTAL | $7.779.610 | 100.0% |

(TOTAL SCHOOL BUDGET 38.6%)

$2.130.724 27.4%
SUBJECT TO CONTROL BY COMMON COUNCIL
$5.648.886 72.6%
MANDATORY AND FIXED ITEMS OVER WHICH COMMON COUNCIL HAS LITTLE OR NO CONTROL DUE TO POLICY, PRECEDENT OR LAW

**REPORT TO TAXPAYERS**—When the taxpayers of White Plains, N. Y., got their bills for the city tax for the first half of 1950, the blow was softened somewhat by this chart which gave a breakdown of the city budget. In graphic form was shown the fact that state and local laws fix certain municipal costs, while local policy and precedent determine the amount of other budget items. The 27.4 percent which the city council controls includes fire, police, public works, recreation, and general city administration. Taxes in White Plains, county seat of Westchester County, this year are reduced as compared with last year.

### Kansas City, 100 years old, sees great expansion

Kansas City, Mo., begins its second century this year with very bright prospects, according to L. P. Cookingham, city manager. It is expected that in 1950, public projects will be started that will total more than $40,000,000.

The city has just annexed 19.7 sq mi of Clay County, Missouri.

More than 4,000 acres of bottom lands in the northeast district have been opened to heavy industry.

It has $10,000,000 of bond money to get projects under way this year.

Completion of a $4,500,000 Southeast trafficway viaduct is expected, as is the start of the $6,000,000 Sixth St. trafficway development.

For additional flood protection, $5,000,000 is available.

Other possible developments are a new 6-lane toll bridge over the Missouri River, to cost possibly $10,000,000; and $2,000,000 for three grade separations for the Manchester trafficways; also bridges, sewers, parks and playgrounds, and improvements at the municipal airport terminal.

This is expected to be a record year for hospital expansion in Greater Kansas City. About $20,000,000 will go into new buildings and additions to increase bed capacity from 4,800 to 6,000. This will boost the total physical value of hospitals in the area to nearly $60,000,000. Big projects to be completed are the Veterans Hospital, additions to Menorah Hospital, the University of Kansas Medical Center, and the interior finishing of the new main building of St. Mary's Hospital.

### Frederick W. Crane heads Buffalo public works

Frederick W. Crane, general manager of the Buffalo, N. Y., Sewer Authority, and former city engineer, has been appointed commissioner of public works for that city.

A graduate of Cornell University, before entering the city's employ in 1923, he served as designing engineer with the Lackawanna Bridge Co. and the Bethlehem Steel Bridge Co. His first municipal position was as assistant structural engineer in the buildings division. In 1933 he was assigned to the engineering division to design major storm water drains, and five years later he was transferred to the sewer authority.

**City Managers**—Victoria, B. C., has become the 36th Canadian municipality to have a city manager form of government. Taxpayers voted overwhelmingly in favor of the plan. Other Canadian cities having city-manager-engineers number 30 in Quebec, two in New Brunswick, two in Ontario, and one in Alberta.

**Many Hospitals**—There are 46 hospital projects in 42 communities in North Dakota now planned or under way. They involve a total cost of about $13,200,000.

E-21
E-19
E-22
E-23

# NOW! ANOTHER REO GOLD COMET ENGINE

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**REO**

# A Command Performance

It was midnight some 175 years ago that a man rode through the countryside calling his neighbors to arms.

Freedom was at stake.

History with deadly finality records the outcome of the struggle set off by that ride—a struggle that ended in freedom for all the people of this country—a freedom we take too lightly today.

Maybe it's because 175 years is a long time and none of us can remember that far back—maybe it's because we have gotten used to this thing called freedom—maybe it's because we have had it so long we can't imagine life without it—maybe we believe we just cannot lose it.

But we can!

Today, the threat against the freedom of the American people is as great as it was that memorable night 175 years ago. In some sense greater. Guns do not threaten us—not yet at least—but an idea, a plan, artfully disguised, promises us the "secure" life.

What will it cost? Not much—just our freedom.

●

Now, let's forego all the high sounding language and get down to cases. What threatens our freedom?

The threat is two-fold . . . from the outside and from within. It isn't hard to identify the danger from the outside. Some twenty years ago, the leaders of Communism and Socialism brought their threats into sharp focus when they declared their operating policies for the future. Both contained a simple philosophy. Bore from within—take a little at a time. Usurp high office—guide the evolution until it becomes complete.

Has any of that happened?

The Communist trials in our country have been most revealing. Every day the press and radio tell us of new infiltration into high places. Nor have the ranks of labor escaped.

What about the inside?

That can easily be answered by another question. Do the American people have as much freedom of use of the money they earn as they did ten years ago? They do not! More people surrender a larger part of their money for tax use than ever before in history. More restrictions curb more people than ever before. More compulsion over the entire populace is advocated. It is a mounting trend becoming more inclusive every year. All of this is offered under the glib promise of liberating man from economic servitude—of a planned life—a total welfare.

So, we have the two threats . . . one from the outside and one from within.

●

It is doubtful that the American people are fearful that Communism will take over our country in the foreseeable future. It is doubtful too that they are unduly alarmed that Socialism as a method of government will replace our government.

But, what they do not understand is that a creeping Socialistic pattern is spreading itself from within—that it can advance to a point from which there can be no retreat. Because this Socialistic pattern moves forward a little at a time, it is not spectacular enough to be recognized for the dangerous thing it is. It is so easy to accept glittering promises—broad generalities, that mask the eventual result.

●

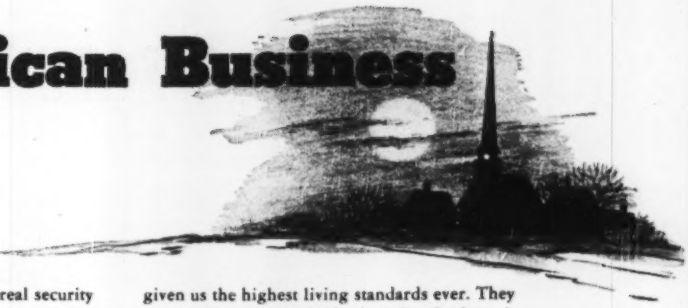
So, what is to be done about it?

We believe the state of the nation calls for a Command Performance from Business—a performance to stop this creeping Socialistic pattern which threatens the freedom of all.

Why does business get the call? There are two reasons.

First, business should do this job because of its obligation to people. That is not a new contention at Ceco. For three years, Ceco has been advancing the thought that the prosperity and security of our nation are tied unremittingly to a four letter word W-O-R-K. Ceco has said and still says management must work *more* at managing. We believe this job is the most important task in the over-all concept of management. It is

# for American Business



up to alert management to provide real security in the present, as well as the future, to prove that responsibility for economic welfare belongs in private, not in public hands.

The second reason is that business—business men—are the best qualified for the job because American business knows most about selling. Businesses grow because business men sell their product. Is merchandise more important than the system which produced it? Isn't the system worthy of our best selling talents too? Yes . . . Business must and should sell the idea that real security and freedom for all are possible only under a virile free enterprise system.

●

Business must expose the alluring misrepresentations that spawn the myth "you can get something for nothing." It must boldly proclaim the simple truism that welfare projects cost money—cost the people their own money. For government has no money except that which is given it by the people through taxes. It must show that excessive taxation is creating a competition to industry which is challenging its right to lead—its right to guarantee economic freedom to people. It must question the cost which could be more than money. Unchecked, taxes can bankrupt the people, bankrupt business, thus making it impossible for individuals acting in private capacities—for business, through free enterprise management—to provide jobs, improve working conditions, assure real security.

It was protest against excessive taxation that occasioned the midnight ride 175 years ago. Now, as then, the same danger threatens.

Yes, freedom *is* at stake!

Business must create a crusading attitude toward free enterprise. Here the problem is not simple. For lately, the people are taking lightly our system of private endeavor which has had a moving influence on life around the world and given us the highest living standards ever. They are "going along" thinking little of where it leads. They are not yet alarmed. Therefore, *unreserved* belief in that which we so casually call the American Way of Life must practically be revived. New vigor must fire *appreciation* of the system of individual effort and reward. There must be *reaffirmation* of faith in the dignity of man, in the real security to be found only in the individual acting in self-interest guided by conscience and a sense of fair play. All the people must be awakened. There must be *150 million individual* crusades in this country, acting in concert, to keep the American Way of Life vital.

Business men must light the fire of a passionate belief within all the people—a belief in our way of life that burns brighter than any fanatical faith in the destiny of any other system.

●

Once the people know the danger, once their enthusiasm for incentive living reaches crusading fervor, they will know how to act. They will see through the will-o'-the-wisp promises of an inexhaustible public purse. They will recognize the fallacy of "something for nothing." Their "horse-sense" will renounce it. But to bring all this about, business men must become vocal. Each business must inform its own people. From little companies employing only a few, to big corporations employing many thousands. This program can succeed. The drift toward public dependency can be stopped but business men must be articulate and act decisively.

Mr. Chairman of the Board, Mr. President of Industry, Vice Presidents, Managers, yes—all of us—must get off of our pants and into the plants. We must meet with the people . . . talk with the people . . . work with the people. This isn't something that can be done by writing a check!

Let's accept this call for a Command Performance now! Today!! This very minute!!!

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# MEN AND JOBS

**Orel E. Lewis** has been named road engineer for Siskiyou County, Calif., to succeed former Road Commissioner Lyle H. Walthers, resigned. Mr. Lewis, who has a degree in civil engineering from Oregon State College, has done structural, road, dam, and sanitary engineering.

**A. H. Guion,** of Charlotte, N. C., has resigned as a member of the North Carolina State Board of Conservation and Development on which he had served since 1945. He is head of the A. H. Guion Engineering, Architectural and Construction Co. of Charlotte.

**Lazarus White,** for more than 30 years president of Spencer, White and Prentis, Inc., engineers and contractors, New York, has resigned. The following have been elected officers of the corporation; **Edmund A. Prentis,** chairman of the board and treasurer; **Charles B. Spencer,** president; **Edward E. White,** secretary; **Joseph C. Weaver,** vice-president; **Harry T. Immerman,** chief engineer; and **Robert E. White** and **Harry W. Cowley,** assistant secretaries.

**Clarence V. Windsor,** former county surveyor and state highway engineer, has become a resident engineer on the Pennsylvania Turnpike.

**Ross H. Bryan,** structural engineer, who for the last three years has been associated with Marr and Holman, Architects, Nashville, Tenn., has resigned to form the consulting structural engineering firm of Bryan and Dozier at Nashville.

**H. M. Morris,** resident engineer, Division 8 at Winston-Salem, N. C., with North Carolina State Highway & Public Works Commission, has resigned. J. B. Clifton will succeed him.

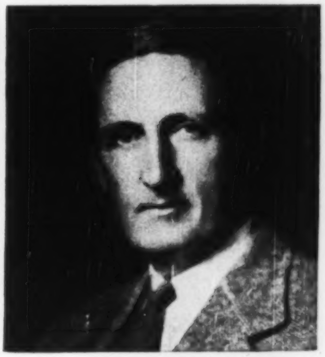
**V. W. Flickenger,** Des Moines, Iowa, has been named chief of the newly-created division of parks of the Ohio Department of Natural Resources, effective Dec. 5. For 10 years he has been chief of the division of lands and waters of the Iowa Conservation Commission.

**A. H. Falace,** formerly with the Dayton, Ohio, Chamber of Commerce and more recently with the Waxahachie, Tex., chamber, has been appointed executive secretary of the Montgomery County Builders Association at Dayton.

**Clarence B. Shain,** city engineer of Pasco, Wash., since April, has resigned to return to his practice as a consulting engineer at Olympia, Wash.

**Leon Morrissey,** who has been a county employee since 1919 as highway commissioner of Winnebaga County, Wis. has succeeded the late E. M. Bird.

For 27 years connected with the Kentucky Department of Highways, John A. Bitterman of Lexington has become director of a newly-created division of materials and testing with a special laboratory at Frankfort where tests are made for the divisions of construction, maintenance, rural highways and design. The materials and testing division will employ more than 100 persons in laboratory and field.



Bernard E. Gray has been elected president of the Asphalt Institute, representing the major part of the petroleum asphalt production industry of the United States and Canada, Mr. Gray has been associated with construction and maintenance for nearly 40 years. He was engineer-economist with the U. S. Bureau of Public Roads and later became senior highway engineer on federal aid projects.

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*Featuring*

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The Beacon Electric Plant with the permanent magnet BRUSHLESS Generator has proved to be the most trouble-free, dependable light plant in operation today.

The BRUSHLESS Generator, used exclusively in the Beacon Light Plant, is so constructed that it eliminates brushes, commutator and slip rings. The generator is self-controlled, self-regulating and burnout-proof. Voltage differential is so slight that complicated regulating equipment is not needed.

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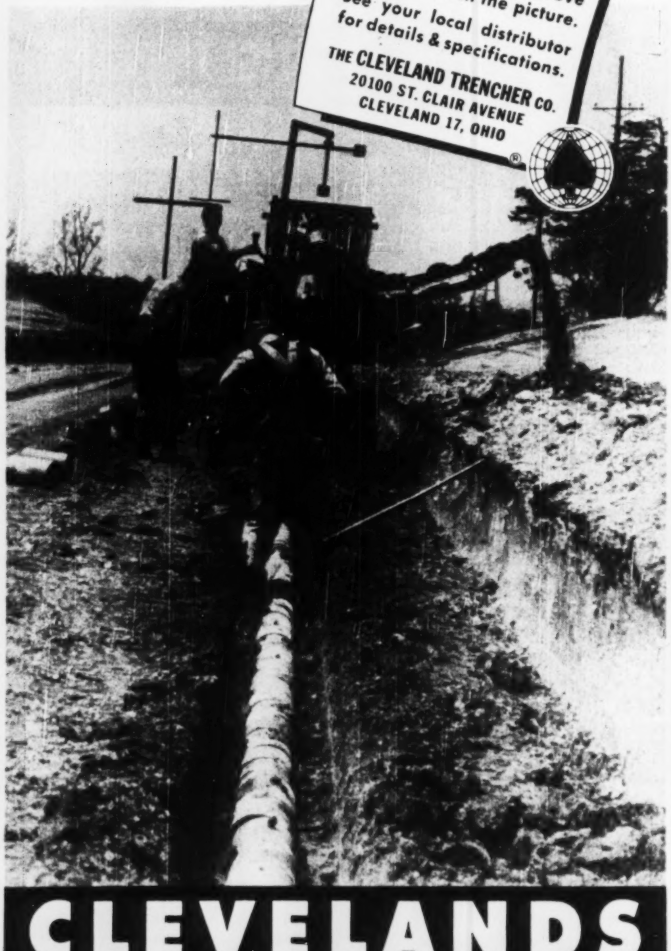


CLEVELANDS
MORE TRENCH in MORE PLACES at LESS COST

**Porter W. McDonnell,** Toledo, O., service director, plans to resign to return to private practice as a civil engineer. Formerly he was a member of the Toledo Lucas County Plan Commission seven years, and worked for several engineering firms before establishing his own.

**Paul D. Cook,** Lake County sanitary engineer for 21 years, is city manager of Painesville, Ohio.

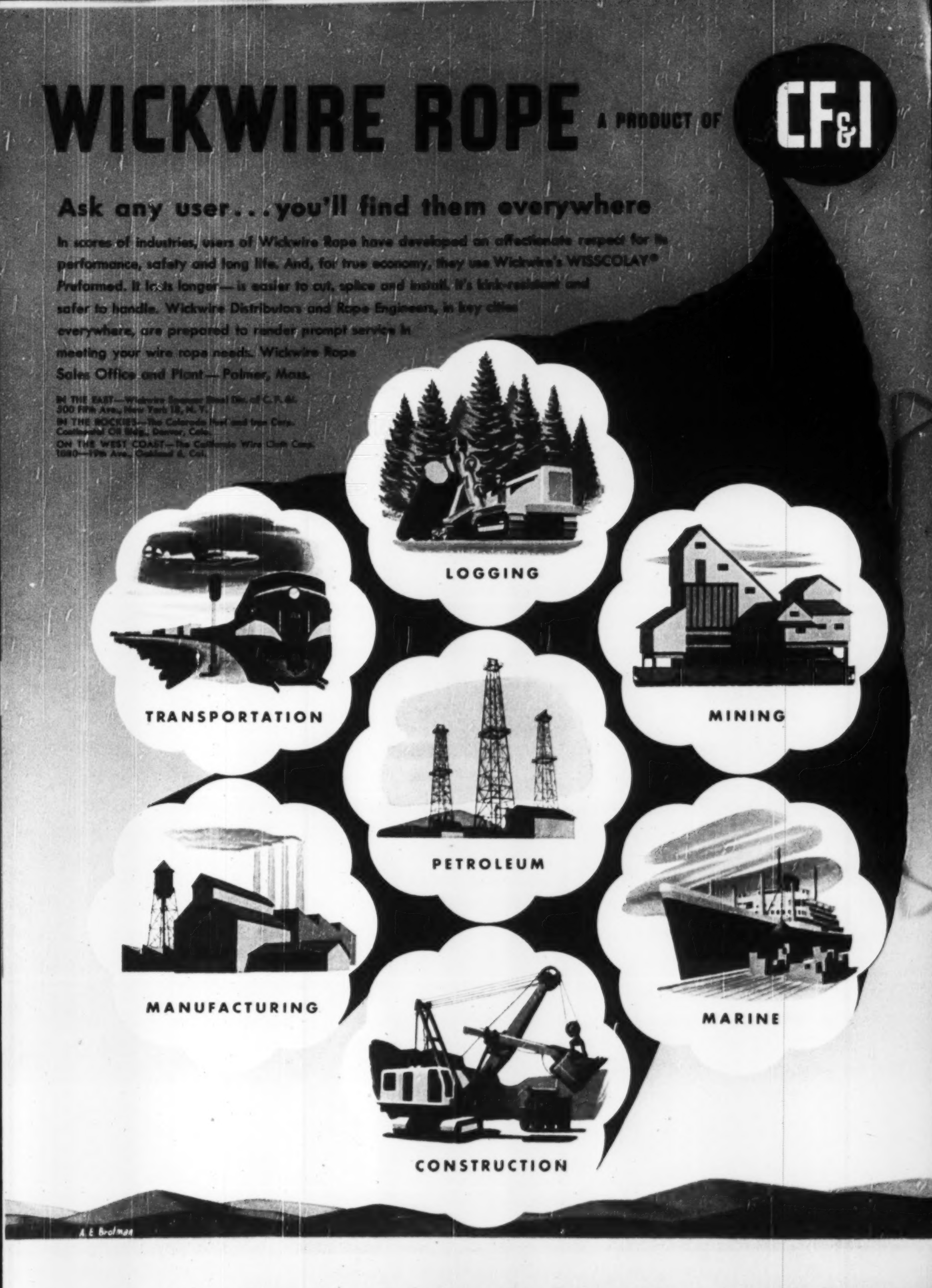
After 30 years **Perry T. Naylor** has resigned as city engineer of Hastings, Neb.

**B. Thor Bjornstad,** civil engineer of Seattle, Wash., has been named district engineer of The Austin Co. in the Pacific Northwest, at Seattle. A civil engineering graduate of the University of Washington, he joined Austin as a structural engineer at the Sand Point Naval Air Station near Seattle in 1940 for a $75,000,000 construction program on naval facilities in the area. He also served four years in Denver with the Bureau of Reclamation, one year as bridge designer with the Washington State Highway Department and a year with the Washington Toll Bridge Authority.

**James Caprell** of Raleigh, N. C., has been appointed superintendent of buildings and grounds at East Carolina Teachers College, Greenville, N. C., succeeding the late J. L. Russell. He has been with N. C. State College in Raleigh and was engaged in construction work in North Carolina for about 30 years, supervising a number of large

(*Continued on page 61*)

Francis B. Warren, of the Turner Construction Co. since 1924, has been appointed assistant to President H. C. Turner, Jr. Mr. Warren, in addition to his duties as assistant treasurer and assistant secretary, has been making special studies and analyses and handling important special problems. He was graduated in civil engineering at McGill University, 1924, and went with Turner.



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In scores of industries, users of Wickwire Rope have developed an affectionate respect for its performance, safety and long life. And, for true economy, they use Wickwire's WISSCOLAY® *Preformed.* It lasts longer—is easier to cut, splice and install. It's kink-resistant and safer to handle. Wickwire Distributors and Rope Engineers, in key cities everywhere, are prepared to render prompt service in meeting your wire rope needs. Wickwire Rope Sales Office and Plant—Palmer, Mass.

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"And I have to climb a ladder to shave myself.

"You see, in the last 4 years American Mutual and I have almost *doubled in size!*

"And if I'm fairly bustin' out of this ad, it's because so many people have discovered that we're the savingest, servingest folks they can come to . . .

"They like the opportunity to get *a dollar's worth of protection* for 80 cents, on most forms of insurance . . .

"They like the way we've helped cut premium costs for hundreds of companies, to way below the average for their fields. (As much as 50% below average in some cases.)

"And they especially like our Specialized Engineering Service, which has demonstrated year after year that we can help contractors reduce costly accidents, and speed construction at the same time.

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# FOR SIZE ... by Mr. Friendly

"The point is . . . the bigger we are, the bigger job we can do for you. With 73 offices from coast-to-coast, we're right next door to you when trouble comes . . . ready and eager to help . . .

"So that you'll recommend us to more people . . . so we'll grow bigger . . . so we can do a better job for them . . . so they'll recommend us to more people . . . so. . . .

In the meantime, let's make this magazine bigger . . . I can hardly contain myself!"

A M

**MAIL THIS COUPON NOW—WITHOUT DELAY!**

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Without obligation, please *rush* to me more information on the All-American Plan so that I may be richer and happier!

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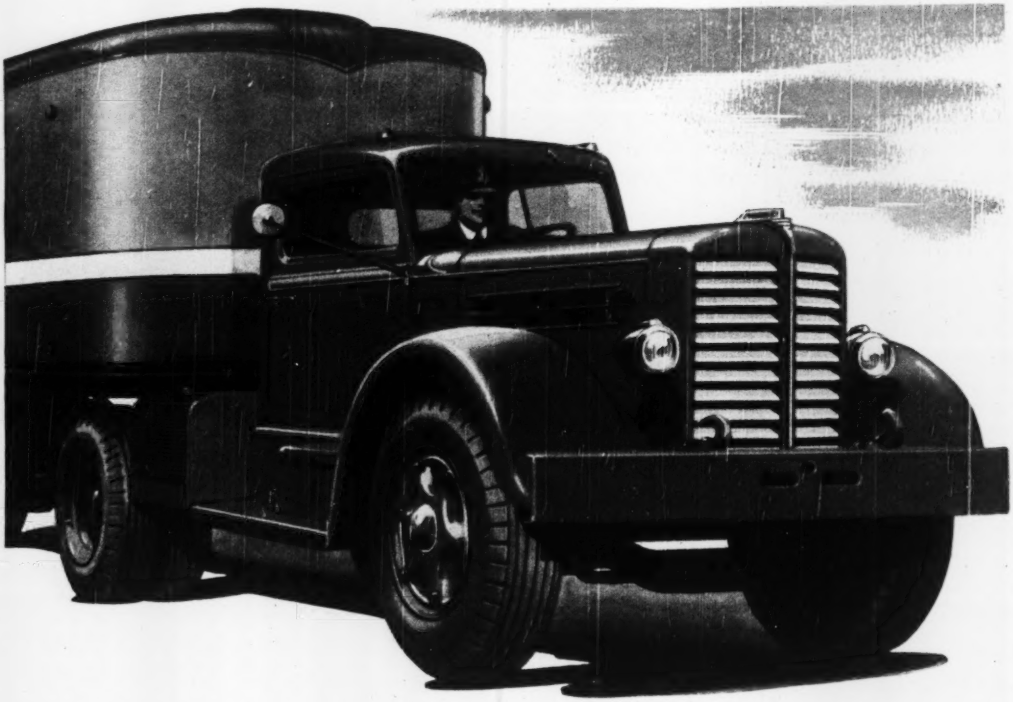

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Your Federal dealer is offering a broad line of 55 truck models in capacities ranging from ¾ to 35 tons, gasoline or Diesel powered with gross ratings to over 90,000 pounds. Let him help you select the Federal best suited for your hauling needs.

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GASOLINE • DIESEL
FEDERAL
TRUCKS
Since 1910

***Federals Have Won . . . . By costing less to run!***

(Continued from page 56)

building projects, including several dormitories at State College and the state revenue building at Raleigh.

**Robert Fleischer**, field engineer for Sheboygan, Wis., has been elected Sheboygan County highway commissioner. He was graduated from the school of civil engineering of Marquette University.

**Roy W. Morse**, engineer, of Seattle, Wash., has been appointed superintendent of the Seattle municipal water department to succeed his father, the late W. Chester Morse. Roy Morse has lived in Seattle all his life, having received his civil engineering degree from the University of Washington in 1928. After working with the Puget Sound Bridge & Dredging Co., in the designing of hydraulic equipment, he was with his father in a consulting engineering firm from 1933 to 1939, in the designing and appraising of water systems. For the last 10 years, he has been with the Boeing Airplane Co. as administrative and project engineer.

Resignation of **Mervin J. Barrick**, of Williamsport, as district sanitary engineer for the Pennsylvania Department of Health, has been announced by the department, and also the resignation of **E. Gilbert Lance**, Portland Mills, Pa., as senior sanitary engineer.

**Burton R. Binyon**, consulting engineer, for the last 10 years with Ford, Bacon & Davis, has opened offices at 3648 Euclid Ave., Cleveland, Ohio.

**Clarence J. Derrick**, president of the Los Angeles, Calif., Board of Public Works, has resigned to return to private business as a consulting engineer.

**Norman D. Drulard**, civil engineer, has been named commissioner of harbors and bridges at Toledo, Ohio. He is a graduate of the University of Toledo, and served 27 months overseas with the Navy Seabees.

**Scott Keith, John W. Raymond, Jr.** and **Russell J. Rice** have become partners in Metcalf & Eddy, Boston and San Francisco. The other partners are **Frank A. Marston, John P. Wentworth, Harrison P. Eddy, Jr., Arthur L. Shaw, E. Sherman Chase** and **Frank L. Flood.**

**R. M. MacKinnon** has resigned as commissioner of works, and building inspector at Halifax, N. S. **F. C. Ward** has been named commissioner of works and city engineer.

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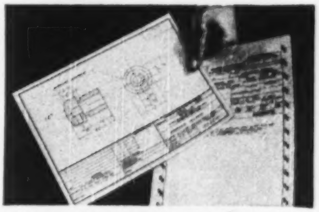

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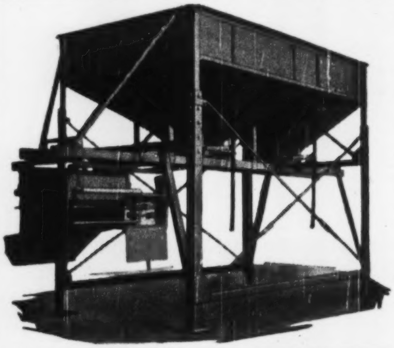

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## Elections and Activities

Charlotte N. C., Engineers Club has elected George S. Rawlins, president; R. Marret Wheeler, vice-president; Glen A. Coan, secretary; and John L. Rosenblatt, treasurer.

Albert Coope, Mahoning County, O., sanitary engineer, has been elected president of the Youngstown chapter, Ohio Society of Professional Engineers. Others elected were A. L. Thurman, vice president; Harold B. Husted, secretary; and Robert W. Bryan, treasurer.

### MAJOR MEETINGS

**National Association of Home Builders,** Congress and Stevens Hotels, Chicago, Ill., Feb. 19-23.

**American Concrete Institute,** annual convention, Edgewater Beach Hotel, Chicago, Ill., Feb. 20-22.

**National Council for Stream Improvement,** annual meeting, Waldorf Astoria Hotel, N. Y. City, Feb. 20-22.

**Minnesota Federation of Engineering Societies,** exposition, Minneapolis Armory, Minneapolis, Minn., Feb. 21-23.

**Ontario Road Builders' Association,** Royal York Hotel, Toronto, Ont., Feb. 22.

**American Concrete Pipe Association,** annual convention, Fairmont Hotel, San Francisco, Calif., Feb. 22-25.

**Associated General Contractors of America,** national convention, San Francisco, Calif., Feb. 27-March 3.

**American Road Builders Association,** annual meeting, Netherland Plaza Hotel, Cincinnati, Ohio, March 6-9.

**Mississippi Valley Conference of State Highway Departments,** Edgewater Beach Hotel, Chicago, Ill., March 9-11.

**American Railway Engineering Association,** Palmer House, Chicago, Ill., March 14-16.

**Concrete Reinforcing Steel Institute,** annual meeting, The Shamrock Hotel, Houston, Tex., March 20-25.

**New Jersey Sewage Works Association,** annual convention, Hotel Stacy-Trent, Trenton, N. J., March 22-24.

**Highway Engineering Conference,** University of Utah, Salt Lake City, March 29-31.

**Canadian Section, American Water Works Association,** General Brock Hotel, Niagara Falls, Ont., April 3-5.

**New Jersey Society of Professional Engineers,** Essex House, Newark, N. J., April 14-15.

**Highway Transportation Congress,** Mayflower Hotel, Washington, D. C., April 25-27.

**American Society of Civil Engineers,** spring meeting, Los Angeles, Calif., April 26-29.

**N. Y. State Society of Professional Engineers,** Hotel Statler, New York City, May 4-6.

**U. S. Conference of Mayors,** Waldorf-Astoria Hotel, New York City, May 11-13.

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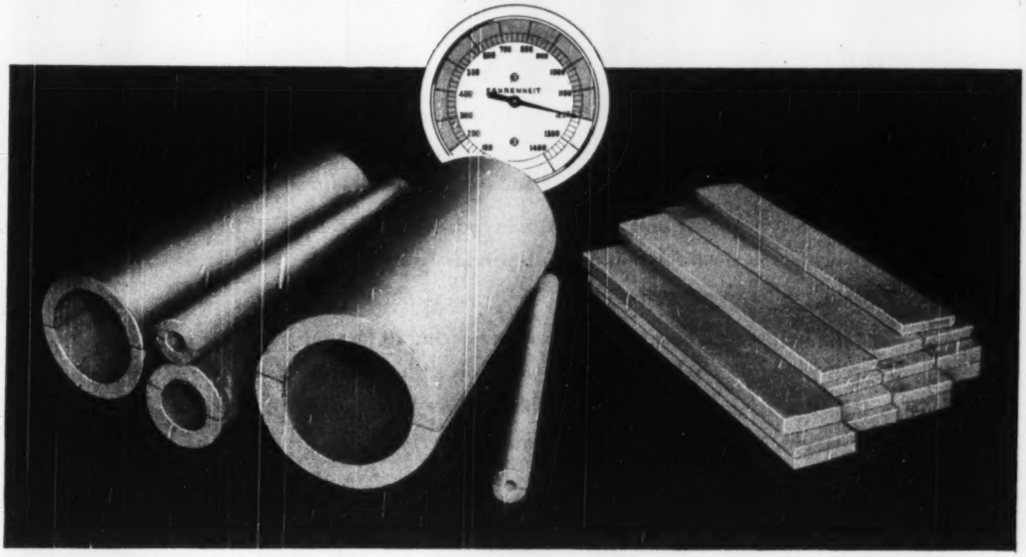

**KAYLO HEAT INSULATING BLOCK** can be easily sawed, cut and scored with standard tools. Cement, canvas or other outer finishes can be applied with minimum effort. Finished jobs have a neat, clean appearance.

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Many types of industries have found this material ideal for their insulating needs. Get the facts now about Kaylo Heat Insulating Block and Kaylo Pipe Insulation.

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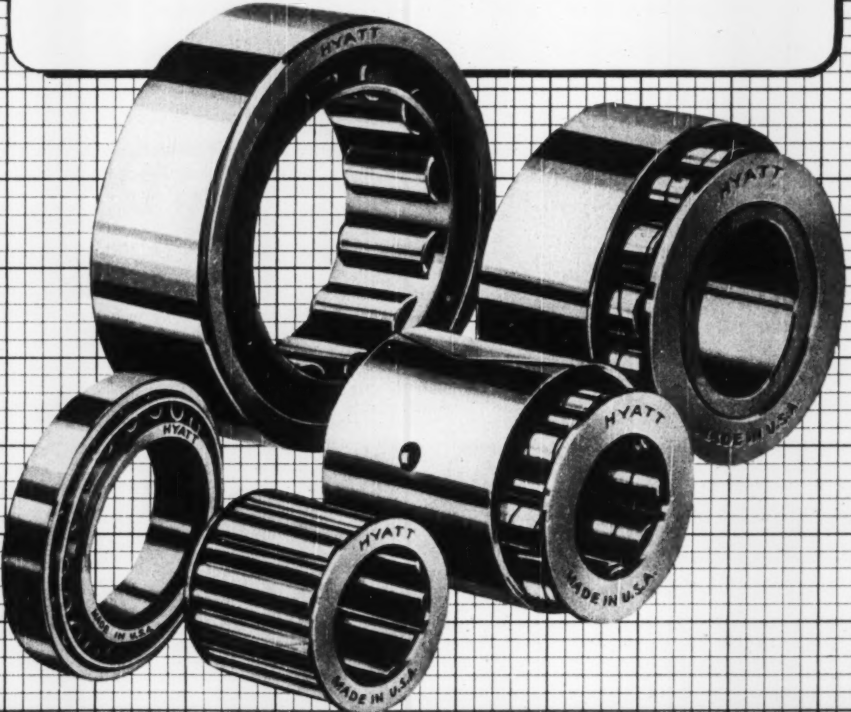
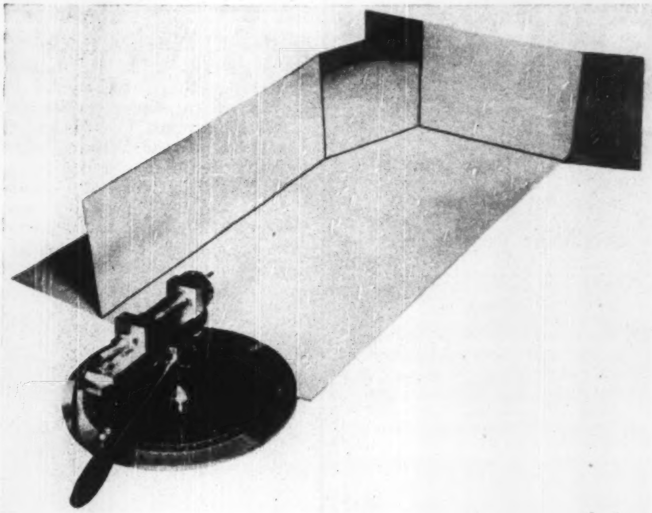
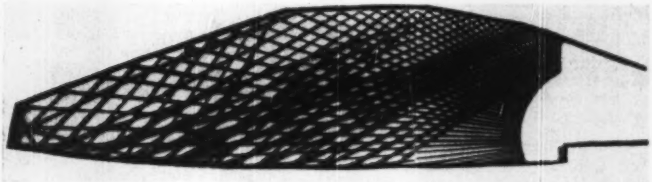


HYATT ROLLER BEARINGS

# EDUCATION and RESEARCH



AUDITORIUM ACOUSTICS—M.I.T. students have used this device to predict the acoustics of auditoriums. A beam of light from the projector in the foreground is used to simulate sound waves coming from the auditorium stage. The light beam reflects off the vertical polished aluminum panels, which represent the auditorium ceiling and rear wall, in the same way sound would reflect off ceiling and rear wall of a similar real auditorium. Photographic paper on the flat surface in front of the panels picks up the results as the beam is moved to study sound starting in different directions from the stage.



TRACING SOUND—A beam of light, reflected from the roof sections of a model auditorium, has left its tracks on photographic paper to show how sound from the stage at the right might reach its audience on the floor of the room, were a full-size auditorium built with the same ceiling shape. Massachusetts Institute of Technology students in architectural acoustics used this method for analyzing auditorium acoustics. They concluded from their study that an auditorium with a cross-section like that shown here would give best sound distribution. The three roof panels would reflect sound from the stage evenly across the entire floor, and the low rear wall would prevent serious echos.

## Structural Research

The school of civil engineering, Cornell University, has under way a number of structural research projects sponsored by various industry and government agencies. The investigations are administered by the department of structural engineering in connection with its program of graduate instruction.

An investigation of the strength and performance of light gage steel structures, sponsored by the American Iron and Steel Institute, has been carried on for more than ten years. It has resulted in that institute's Specification for the Design of Light Gage Structural Members, issued in 1946 and, at this time, incorporated in a large number of municipal and other building codes. Work on this project is continuing in order to keep abreast of the rapidly expanding field of light gage steel construction.

The Column Research Council of the Engineering Foundation and the U. S. Bureau of Public Roads are cosponsors of an investigation on buckling of rigid joint structures. This project is aimed at developing a more rational basis for the design of compression members in trusses and other rigid joint construction.

An investigation of the distribution of tension and bond stresses in reinforced concrete members, sponsored in part by the American Iron and Steel Institute, is nearing completion. A new strain gage technique has been employed in this project to measure in great detail undisturbed steel and bond stresses in beams and other specimens.

The National Advisory Committee for Aeronautics is the sponsor of a recently instituted investigation on the interaction of local and column buckling, a problem which is common to structures used in aircraft as well as in civil engineering construction of various kinds.

Another project just getting started is concerned with the performance of bridge rollers. Although this problem is strictly one of civil engineering, interest in it is shown in the department of machine design of the mechanical engineering school since it concerns questions of fatigue, selection of materials, and the like, rather than structural analysis and testing.

In all these projects theoretical analysis and experimental investigation are carried on side by side. Qualified students are appointed to paid positions as research assistants or associates for these investigations, and are delegated responsible work in analysis and testing under the supervision of the professors in charge of the various projects.

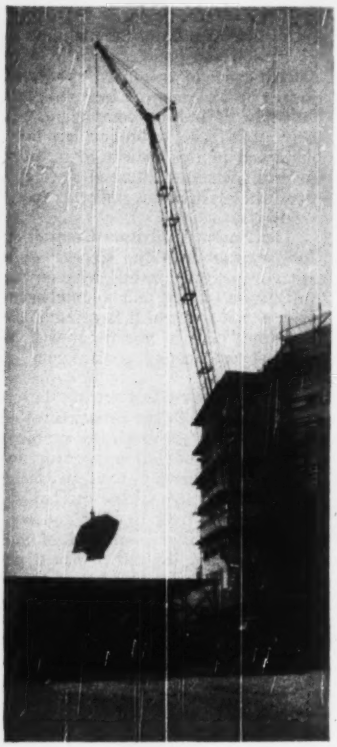
## Many Research Projects

Accomplishments in a wide variety of scientific fields make up an annual report issued by Armour Research Foundation of the Illinois Institute of Technology.

Descriptions of more than 200 research projects undertaken by scientists and engineers of the foundation during the 1948-1949 fiscal year appear in Armour Research Foundation's 44-page booklet.

A total of 296 research projects were undertaken by 630 staff members at Armour Research Foundation during the year. Sponsored by industry, government agencies, and the foundation itself, the projects represent an investment of more than $4,000,000, an increase of 22 percent over the previous year.

GENERAL



**Model 312 Truck Crane makes hit with Beardmore Transfer Co., Spokane, Washington**

"The smooth flexibility and sturdiness of this crane make it a wonderful piece of machinery to be used on any construction job, saving time, money and manpower," writes William Beardmore, President of Beardmore Transfer Line, in telling what he thinks of the new General Model 312 Truck Crane.

This General crane outlifts any other truck crane of comparable weight, and there is no excess counterweight to remove when the machine travels highways. Simple, trouble-free Air-Cushion Clutch with Air Control provides fast, velvet-smooth action . . . permits easy control of loads for accurate pin-point placements . . . reduces wear on both operator and machine. When you invest, get the best—get General.

**Photo**—*Hoisting air conditioning machinery to roof of Baxter Veteran's Hospital, Spokane, Washington.*

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## OBITUARY

**Joseph J. Milton,** 65, Harvard, 1908, died in Philadelphia, Pa., on Jan. 10. After leaving college, he had eight years of engineering experience in this country and Canada, and then joined Stone and Webster. He was closely identified with the design of the M.I.T. buildings at Cambridge, Mass., and in 1918 and 1919 was assigned to the Hog Island Shipyard as an assistant production manager, Division of Stores and Material. Since 1919 he had been engaged continuously as structural engineer with the Dwight P. Robinson Co. of New York and with its successor company, United Engineers and Constructors Inc. of Philadelphia. During that time, he had charge of structural engineering work in connection with many large power and industrial projects, specializing in power plant design.

**James J. Reilly,** 85, for many years general construction superintendent of the architectural and building department of the Chicago Board of Education, died Jan. 9.

**Peter A. Cruise,** 80, former president of the Cruise Construction Co., Pawtucket, R. I., and for 39 years active in the erection of public buildings in Rhode Island, died in Providence on Jan. 16. For four years he was a partner in the Humes, Cruise & Smiley Construction Co.

**Daniel F. Toomey,** 81, for many years affiliated with the Army Corps of Engineers and a specialist in lighthouse construction, died Jan. 15 in Norwalk, Conn. He built many lighthouses along the Atlantic seaboard and had charge of several Federal dredging projects.

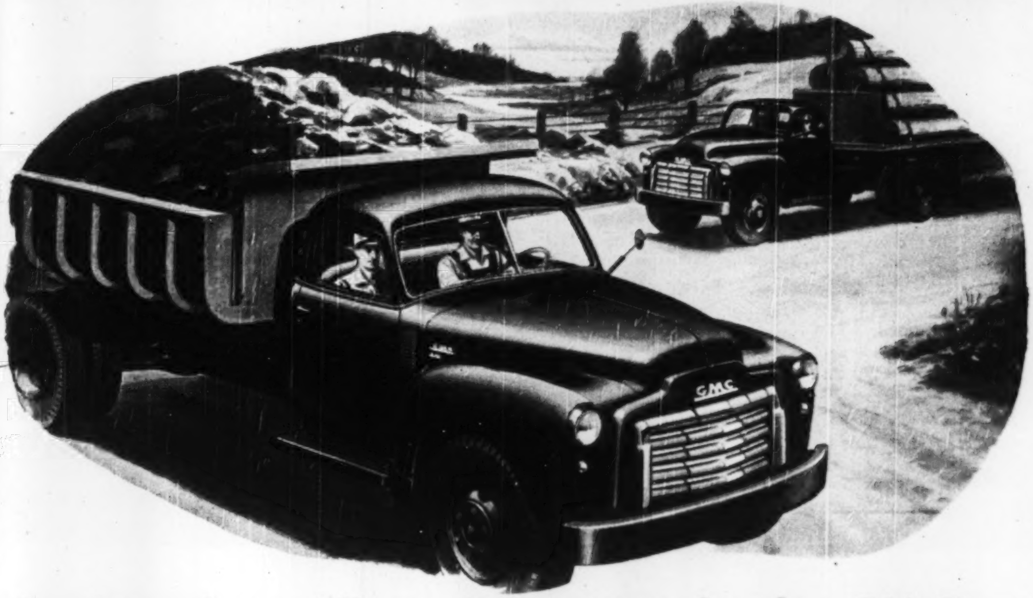
**Charles B. Elder,** 56, formerly a construction engineer for the Defense Plant Corp. at St. Louis, Mo., died Jan. 3, at Arcadia, Mo. He was the owner of the Taprock Materials and Engineering Co. of Iron Mountain, Mo.

**Girard Chambers,** 81, who for 50 years was the official surveyor and engineer for Elizabeth City County, died Jan. 7 in Hampton, Va. In addition he had been the town engineer for Phoebus and the city engineer for Hampton.

**Leon L. Leeds,** 55, vice-president of the McDonald Engineering Co., San

(*Continued on page 69*)

# New "HEAVY-DUTY" 2½-TON GMC TRUCKS



## Designed to Allow Operators in the 2½-Ton Range to Haul Bigger Loads at Less Cost

**More Powerful 270-cu.-in. "Army Workhorse" Engine**
•
**Heavy Duty Rear Axle**
•
**Five-Speed Direct and Optional Overdrive Transmissions**
•
**New Heavy Duty Hydraulic and Optional Air Brakes**
•
**Conventional and Cab-Over-Engine Models**
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**Six Wheelbases Providing Nine Cab-to-Axle Dimensions**

Here's real "big" truck performance in the middle duty hauling range . . . here are GMC's new 470 models . . . trucks for over-the-road and off-the-highway operators that set new standards in 2½-ton hauling ability.

These GMCs are all truck-built from exclusive bumper-bar grille to tough, rugged rear axle . . . offered in single, double reduction or 2-speed types. They have big GMC valve-in-head engines and are available with air brakes . . . features that make them highly desirable for both truck and tractor use

GMC 470s, in ten models, are built to provide an extra margin of performance . . . to haul bigger loads at less cost in the construction transport field.

**GMC**
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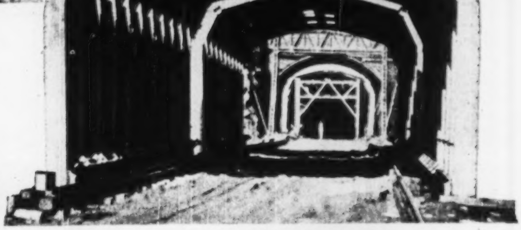
**TRUCKS**

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

# BLAW-KNOX steel forms save one costly concreting operation on a BIG TUNNEL JOB

Original specifications on this big tunnel concreting job called for four operations . . . pouring side walls, placing arched roof, then the ceiling slab, and the floor. Collaborating with the contractor, Blaw-Knox engineers demonstrated how Blaw-Knox collapsible Steel Forms could be combined to permit concreting of side walls and roof arch in one operation. One step in construction was saved, and the necessity of using an expensive copper water stop between the wall and the arched roof was eliminated. The time saved expedited completion of the job. A daily concreting progress of 50 ft. was obtained by telescoping 50 ft. units of combined side wall and arch forms. Such Blaw-Knox consultation service in planning profit-making construction jobs as early as the blueprint stage is available to any contractor without obligation.

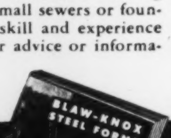


Right—Typical of the wide variety of jobs on which Blaw-Knox Steel Forms are used, this super highway viaduct was built with three sets of Blaw-Knox steel centering which carry the forms for the arch ribs.

Left—Blaw-Knox Steel Forms speed construction of a small sewer. Some of the recent typical jobs where Blaw-Knox forms and engineering service were used include: Brooklyn-Battery Tunnel, West Rock Tunnel (New Haven), Bull Shoals Dam, Delaware Memorial Bridge, Squirrel Hill Tunnel, Parkersburg Floodwall and many others.

## TOUGH, UNUSUAL PROBLEMS SOLVED BY BLAW-KNOX ENGINEERING EXPERIENCE

**EXPERIENCE** As the original and most prominent manufacturer of Steel Forms for heavy construction, Blaw-Knox has been called upon to solve many tough and unusual concreting problems. The experience gained over 40 years has resulted in an engineering service unequalled for helping you obtain the most efficient forms for your particular job plus simplified forming methods that save time and money. Whatever your concreting problems, from tunnels to building big dams or bridges, to pouring small sewers or foundations, Blaw-Knox engineering skill and experience is at your service. Write today for advice or information, or ask for Bulletin 2035.



# BLAW-KNOX

BLAW-KNOX DIVISION OF BLAW-KNOX CO., Farmers Bank Bldg., Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington

(Continued from page 66)

Francisco, Calif., died Jan. 7. A graduate of the University of Missouri, for 25 years he had practiced engineering in the Kansas City area.

**William W. Beers**, 82, of the Beers Steel Building Corp., Newark, N. J., died in Jersey City recently. He was connected with the steel building industry all his life. Among the many projects on which he had been engaged were the construction of the Brooklyn Bridge and of the Brooklyn elevated railroad system. He also worked on many bridges and sugar mills in Hawaii and the Philippines.

**Louis Hood**, 64, civil engineer, who was retired as head of the Interstate Commerce Commission's bureau of valuation in January, 1949, died Jan. 21 in Washington, D. C.

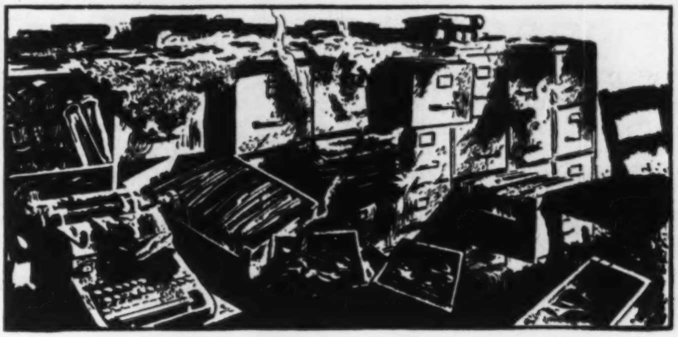
**Luman Sherwood**, 72, formerly assistant chief engineer for the Canadian department of railways and canals, died in Ottawa Jan. 20.

**Elihu Fowler**, 65, former Army colonel and engineer, of Chevy Chase, Md., was killed Jan 24 in an automobile accident near Jackson, Tenn. He retired several years ago from the Westinghouse Electric Corp., but came out of retirement during World War II to join the War Assets Administration.

**John Henry Griffiths**, 58, civil engineer and veteran of the first world war, died at Caldwell, Ida., recently. He had been active in many developments in that area, latterly as a member of the firm of Griffiths, Davenport and Associates. For eight years he was city engineer of Nampa, Ida., and in the PWA days he was district engineer for government construction work in that section.

**Oscar D. Ridings**, 86, retired U. S. engineer, died Jan. 15 at Wilmington, Del. During his entire service he had been stationed in the Delaware District. He retired in 1933 after 37 years' service. At that time he was chief civilian coast engineer for the district.

**LeRoy J. McCarty**, 78, retired New York State highway department official and consulting engineer in the construction of the Tahawus Lead Mines near North Creek, N. Y., during the war, died Jan. 18 in Albany, N. Y. An engineer in the highway department for 26 years before his retirement he was consultant to the S. A. Scullen Construction Co., Waterford, N. Y.



What would it cost to replace *your* records and books?

(Files, accounts, ledgers, blueprints, abstracts, library, inventory, etc.)

***Based on Claim File No. 96B8785 of the Hartford Accident and Indemnity Company.*** **On September 10 the office of our warehouse was damaged by fire, resulting in a $28,000 loss to building, machinery and equipment. This was in line with our estimate of value when the insurance was bought. However, we were certainly in for a surprise when we began to figure the cost of replacing blueprints, inventory records, etc.! Our first guess was around $5000, and this price went up every day until now we know that the records destroyed could not be replaced for $40,000. We had $25,000 Valuable Papers Insurance, which we thought more than enough, and yet this fire destroyed only a small part of our records. We appreciate very much the way Hartford handled this claim and the promptness with which we were paid.**

• • •

**Most business and professional men need *Valuable Papers Insurance.* This covers *replacement cost,* not only against fire but against loss due to explosion, windstorm, theft and most other causes.**

**Write for a sample policy or see your Hartford agent or insurance broker who will gladly furnish details of this low-cost, broad protection. In over 5000 communities you can secure the name and address of the nearest Hartford agent quickly by calling Western Union and asking for "Operator 25".**

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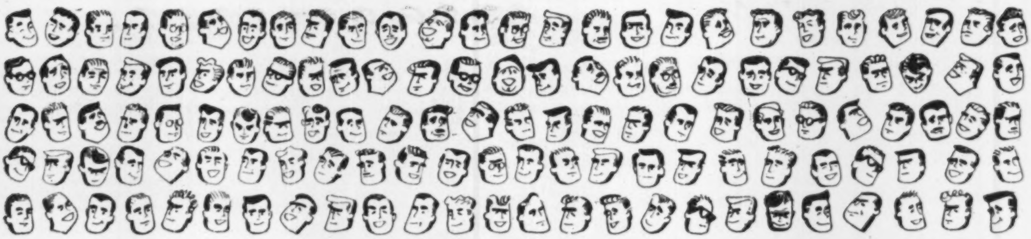
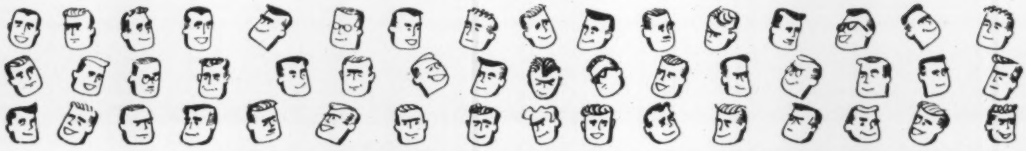
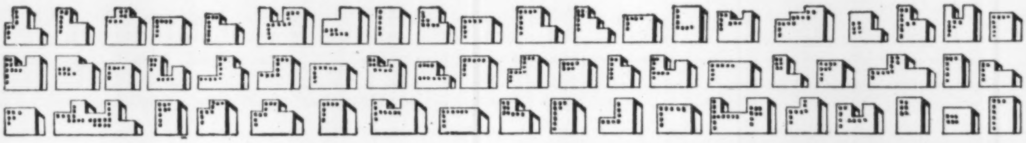
YEAR IN AND YEAR OUT YOU'LL DO WELL WITH THE HARTFORD



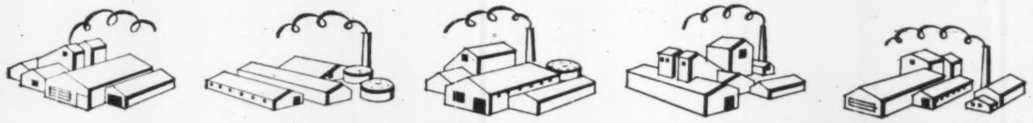
**257 FIELD REPRESENTATIVES**



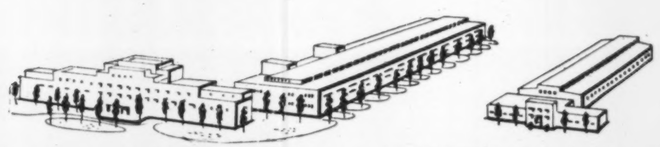
**48 INSTALLATION INSTRUCTORS**



**58 SALES OFFICES**



**5 MANUFACTURING LOCATIONS**



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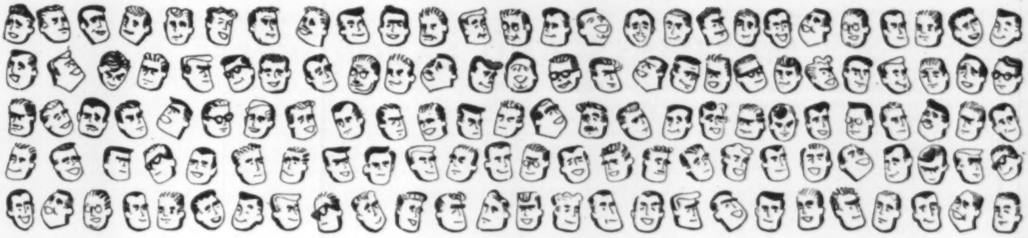

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Here is an organization which, over the past many years, has helped to bring a better, a more efficient and a more economical means of water transportation to many hundreds of American cities and towns.

Its facilities include more than 250 field representatives with headquarters in 58 cities. It also comprises a staff of competent installation instructors who explain recommended installation practices to pipe-laying crews. This Johns-Manville service is an important factor in helping to assure the installation economies as well as the long-term *overall* economies that go with Transite Pressure Pipe.

Behind this field organization are the modern production methods which assure the high quality of the finished product. These begin with careful selection of raw materials and are continued through the special processing operations to the final tests which each individual length of pipe must undergo before shipment is made. Five conveniently located plants now serve Transite Pipe users from coast to coast.

And back of all this is engineering—and research. For without them, the plus values that have been built into Transite Pipe would not have been possible. Today, in the new J-M Research Center, the engineer and the technician continue to find new answers to old problems. Their work is an indispensable part of the complete Transite Pipe service which Johns-Manville offers the water works industry. For further information, write Johns-Manville, Box 290, New York 16, N. Y.

***TRANSITE is a Johns-Manville registered trade mark**

## TRANSITE ASBESTOS—CEMENT PRESSURE PIPE

**FOR BETTER WATER SERVICE**

# MATERIALS AND LABOR PRICES

**Market quotations on construction materials and wage rates reported monthly by ENR correspondents**
**March Materials and Labor Prices will appear in the March 9, 1950 issue**

## CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

| | PORTLAND CEMENT* Per bbl. *C/L* lots incl. $1.00 per bbl. for bags, cash. dis. not deducted | | | SAND AND GRAVEL Per ton. carload lots | | | CRUSHED STONE Per ton. carload lots | | CRUSHED SLAG Per ton. carload lots, f.o.b. plant | | CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block | | CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cloth | Paper | Bulk | Gravel, 1½ in. | Gravel, ¾ in. | Sand | 1½ in. | ¾ in. | 1½ in. | ¾ in. | Sand grav. | Lt. wgt. agg. | |
| Atlanta | $4.16 | $3.41 | $3.10 | $2.00 | $2.00 | $1.75 | $2.10 | $2.10 | $1.65 | $1.85 | $0.1725 | $0.1725 | $11.00 |
| Baltimore | .... | 3.39 | 3.14 | 2.40‡*a* | 2.40‡*a* | 1.95‡*a* | 2.60‡*a* | 2.70‡*a* | 2.45‡*a* | 2.45‡*a* | .16 | .16*a* | 10.25 |
| Birmingham | 3.75 | 3.00 | 2.68 | 2.06 | 2.06 | 1.84 | 2.50 | 2.50 | 1.00 | 1.20 | .145 | .145 | 7.75 |
| Boston | .... | 3.67 | 3.41 | 2.50*a* | 2.50*a* | 2.50*a* | 1.00*a* | 1.70*a* | .... | .... | .196 | .205*a* | 10.45*h* |
| Chicago | 3.63/3.69 | 2.82/2.89 | 2.58/2.64 | 2.75‡*b* | 2.75‡*b* | 3.20‡*b* | 2.75‡*b* | 2.75‡*b* | 2.00‡ | 2.00‡ | .20 | .20*b* | .... |
| Cincinnati | 4.14 | 3.34 | 3.08 | 1.75‡*c* | 1.75‡*c* | 1.85‡*c* | 2.00‡*h* | 2.00‡*h* | 1.50 | 1.50 | .185 | .205 | 11.65*d* |
| Cleveland | 3.83 | 3.03 | 2.75 | 1.90*ef* | 1.65*f* | 1.55 | 3.55‡*a* | 3.55‡*a* | 2.75 | 2.75 | .... | .21 | 11.80*g* |
| Dallas | 3.57 | 2.82 | 2.52 | 2.00 | 2.15 | 1.75 | 2.10 | 2.15 | .... | .... | .089*e* | .125 | 9.30 |
| Denver | .... | 3.54 | 3.29 | 1.85 | 2.00 | 1.15 | .... | ..... | .... | .... | .20 | .23*a* | 9.65 |
| Detroit | .... | 2.98 | 2.73 | 3.25‡*b* | 3.25‡*b* | 3.00‡*b* | 2.75/3.00‡ | 2.75/3.00‡ | 3.00‡ | 3.00‡ | .17 | .18*a* | 9.85 |
| Kansas City | 3.91 | 3.16 | 2.85 | 1.95 | 1.95 | 1.30 | 1.45*a* | 1.45*a* | .... | .... | .15*ag* | .17*ch* | 10.40*b* |
| Los Angeles | .... | 3.72*a* | 3.32*a* | 1.94‡*a* | 2.04‡*a* | 1.74‡*a* | 1.92‡*a* | 1.92‡*a* | .... | .... | .12*f* | .227 | 9.70*lh* |
| Minneapolis | 4.13*cd*** | 3.33*cd* | 3.07*cd* | 2.40‡*ag* | 2.40‡*ag* | 1.45‡*ag* | 2.50‡*ag* | 2.50‡*ag* | .... | .... | .21*i* | .... | 10.90*fi* |
| Montreal | .... | 2.46*ac* | 2.31*ac* | ...... | 2.50*hi* | 2.00*i* | 1.30*ij* | 1.60*ij* | .... | .... | .22 | .20*a* | 9.05*ak* |
| New Orleans | .... | 2.90*e* | 2.65*e* | 2.32 | 2.32 | 1.82 | .... | .... | 1.05 | 1.25 | .25 | .... | 12.40 |
| New York | 4.29 | 3.49 | 3.24 | 2.00*bk* | 2.00*bk* | 1.45*bk* | 2.35*bl* | 2.35*bl* | .... | .... | .... | | 10.50*a* |
| Philadelphia | 3.93/4.23‡ | 3.13/3.43‡ | 2.87/3.17‡ | 2.45‡ | 2.55‡ | 2.05‡ | 1.90‡ | 1.95‡ | 1.50 | 1.50 | 18/.22 | .... | 10.80 |
| Pittsburgh | 3.90 | 3.18 | 2.85 | 2.05‡ | 2.05‡ | 2.00‡ | 2.50‡ | 2.50‡ | 2.05 | 2.05 | .21*d* | .21*d* | 10.85 |
| St. Louis | 3.74/3.80*b* | 2.94/3.05*b* | 2.75*b* | 2.40/2.60‡*am* | 2.40‡*am* | 2.00/2.40‡*am* | 1.60*j* | 1.60*j* | 1.15 | 1.15 | .215 | .34*ci* | 10.40 |
| San Francisco | .... | 3.39 | 2.99 | 1.86 | 1.86 | 1.96 | 1.96 | .... | .... | .... | .... | .25*c* | 10.15*c* |
| Seattle | .... | 3.55*a* | 3.05*a* | 2.75‡*bm* | 2.75‡*bm* | 2.75‡*bm* | 3.50‡*bm* | 3.50‡*bm* | .... | .... | .22*j* | .3135*j* | 9.75*j* |

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. ** May be discontinued after Jan. 1. SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson River. *m* Less 2% for cash.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *h* F.o.b. plant. *i* Less 2% for cash. *j* Less 1% for cash.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *d* Truck loads up to 500 cu. yds. *e* 2.000 lb. concr. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

### CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For cloth bags, add $1.05 per bbl.; 25¢ refund allowed for each returnable bag; for paper bags add 25¢ per bbl., not refundable

| | Bulk | | Bulk | | Bulk | | Bulk | | Bulk |
|---|---|---|---|---|---|---|---|---|---|
| Richard City, Tenn | $2.40† | Buffington, Ind | $2.30 | Steelton, Minn | $2.40 | Muskegon, Mich | $2.50† | Toledo, O | $2.40† |
| Clinchfield, Ga | 2.40† | Independence, Kan | 2.30 | Leeds, Ala | 2.25 | Saginaw, Mich | 2.35† | Milwaukee, Wis | 2.50† |
| Kingsport, Tenn | 2.40† | Hannibal, Mo | 2.35 | Duluth, Minn | 2.40 | Wyandotte, Mich | 2.40† | Green Bay, Wis | 2.50† |
| West Des Moines, Iowa | 2.45† | Northampton, Pa | 2.40 | Hudson, N. Y | 2.40 | Buffalo, N. Y | 2.40† | Ironton, O | 2.30 |
| Nazareth Pa | 2.40† | Universal, Pa | 2.40 | Alpena, Mich | 2.25† | Oswego, N. Y | 2.60† | Montreal City | 2.13 |
| Bath, Pa | 2.40† | Waco, Tex. (+ 9¢ tax) | 2.20 | Detroit, Mich | 2.40† | Cleveland, O | 2.40† | W. Winfield, Pa | 2.40† |

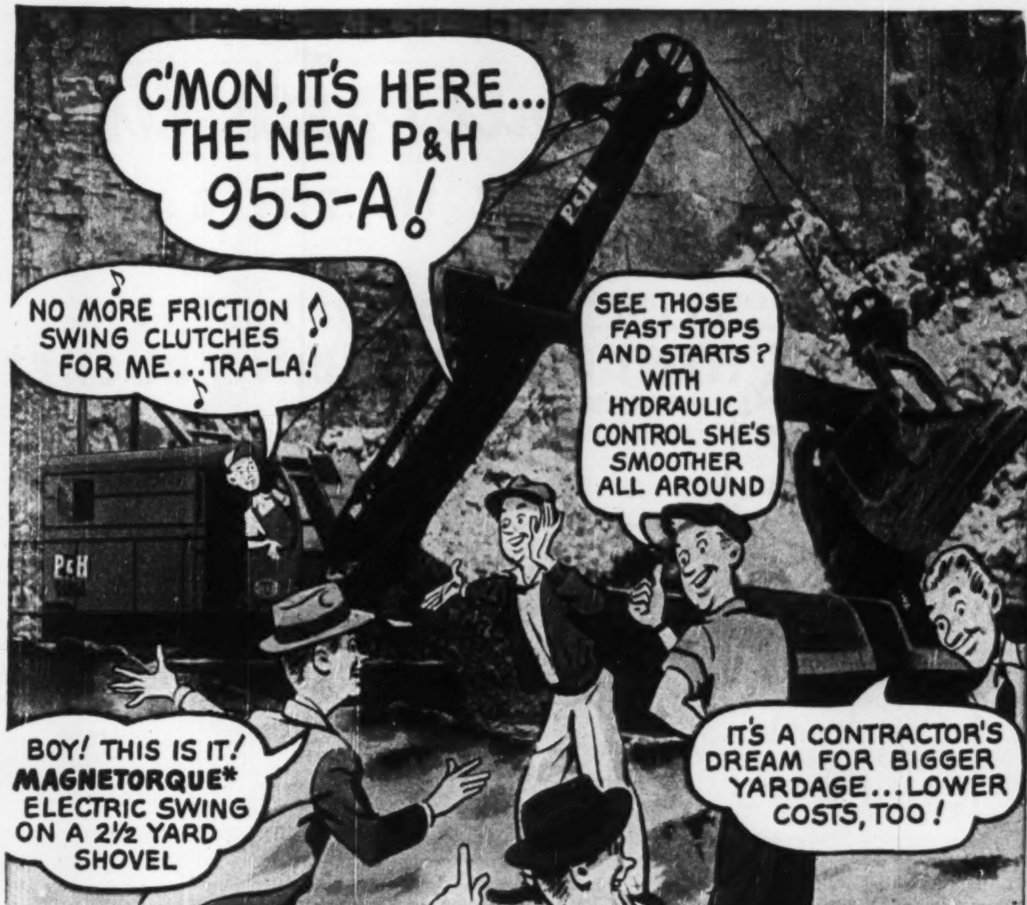
‡ *Prices to hold for first quarter of 1950*

## PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

| | PAVING BRICK AND BLOCK | | | PAVING ASPHALT Per ton, less than 80 penetration | | ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration | | CUTBACK ASPHALT Per ton | | ROAD OIL Per gal. | ASPHALT EMULSION (Quick-breaking) Per gal. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Granite Per M lots of 50.000 4x4x8 in. | Brick per M 3x4x8½ in. carload lots | Wood per sq. yd. 3½ in. 16-lb. treat | Tank car | Drums | Tank car | Drums | Tank car | Drums | Tank car | Tank car | Drums |
| Atlanta | $73.00 | $35.00 | $2.25 | ..... | .... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Baltimore | 150.00‡ | 57.70‡ | ..... | $22.00 | ..... | $.09 | $0.145 | $.09 | $.165 | $.09*i* | $.09 | $0.11 |
| Birmingham | ...... | 32.50 | ..... | ..... | ..... | ..... | ..... | ...... | ...... | ...... | ...... | ...... |
| Boston | ...... | ...... | ..... | 24.50*a* | $35.50*a* | .1036*a* | .185*a* | .115*aw* | .205*aw* | .10*a* | .113*a* | .205*a* |
| Chicago | 155.00‡*a* | 85.00/88.00‡*b* | 2.70/3.50‡*f* | 20.25*b* | 30.25*b* | 19.25*bv* | 29.25*bv* | .0875*bw* | .16*w* | .075*b* | .1025/.1075*b* | .15/.1675*b* |
| Cincinnati | ..... | ..... | ..... | 19.00*k* | .... | .085 | .0890 | .085*w* | ..... | ..... | ..... | ..... |
| Cleveland | ..... | 49.00‡ | 3.43*g* | 25.00 | 35.00 | 25.00*v* | 34.50*v* | .105*w* | .22*w* | .10 | .115 | .25 |
| Dallas | *e* | 40.00 | *e* | 23.95 | 42.99 | .1012 | .1898 | 26.99 | 47.97 | .0987 | .1062 | .1423 |
| Denver | ..... | 43.00 | ..... | ..... | .... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Detroit | ..... | ..... | ..... | 29.05 | .... | .12*v* | ..... | .1203*w* | ..... | .092 | ..... | .1958 |
| Kansas City | ..... | 40.00*d* | ..... | 19.05*cl* | .... | ..... | ..... | .075*cw* | .0775*w* | .065*c* | ..... | ..... |
| Los Angeles | *e* | ..... | *e* | 12.50*dm* | .... | 12.50*dv* | ..... | 14.00*d* | ..... | 12.50*dv* | .0775*j* | .1575*j* |
| Minneapolis | ..... | ..... | 2.83*h* | 24.00 | 35.00 | 22.00*v* | 33.00*v* | 24.00 | 35.00 | .09 | .12 | .22 |
| Montreal | 137.00 | *e* | *e* | 27.00*n* | 36.65*n* | 16.70*nu* | 18.70*nu* | 16.30*nu* | 18.30*nu* | 13.20*ns* | .174*n* | .215*ns* |
| New Orleans | ..... | ..... | ..... | 16.50*e* | ....*o* | 16.50*ev* | .....*o* | .08*ew* | .....*o* | .0775 | .08 | .1425*t* |
| New York | ..... | ..... | 2.35*f* | 23.50 | 35.86*q* | 22.50*v* | 41.88*qv* | .0940*w* | .1767*qw* | .0890 | .0940 | .1747*g* |
| Philadelphia | 150.00 | 110.00 | 4.06 | 23.00 | .... | 22.00*v* | ..... | .095*w* | ..... | ..... | ..... | ..... |
| Pittsburgh | 165.00 | 42.00 | 4.50 | 23.00 | 36.00 | .11 | 23 | 27.00 | 40.00 | .095 | .10 | .21 |
| St. Louis | ..... | ..... | ..... | 21.65*f* | .... | 16.83 | ..... | .0925*w* | ..... | .15 | .1081 | .25 |
| San Francisco | ..... | 57.75*c* | ..... | 14.50*g* | 30.00*gp* | 14.50*gkv* | ..... | 16.50*g* | ..... | ..... | .08 | .14 |
| Seattle | ..... | ..... | ..... | 15.50*h* | 36.00*h* | 16.00*hv* | ..... | 17.50*h* | 21.50*hr* | 16.00*hv* | .08*h* | .09*h* |

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* F.o.b. Buffalo, Kans. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Use of used drums. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 55-gal. drums. *u* Per 100 gal. *v* Per ton. *w* Per gal.

(Continued on page 75)


C'MON, IT'S HERE... THE NEW P&H 955-A!
NO MORE FRICTION SWING CLUTCHES FOR ME...TRA-LA!
SEE THOSE FAST STOPS AND STARTS? WITH HYDRAULIC CONTROL SHE'S SMOOTHER ALL AROUND
P&H
P&H
BOY! THIS IS IT! MAGNETORQUE* ELECTRIC SWING ON A 2½ YARD SHOVEL
IT'S A CONTRACTOR'S DREAM FOR BIGGER YARDAGE...LOWER COSTS, TOO!
RUGGED? THIS BABY HAS IT.. JUST LIKE THE 1055!

**Yes, the new 955A is a standout. And almost a sellout, too! This 2½ yard shovel, a smaller version of the famous P&H Model 1055, can be shipped completely assembled. Lower digging costs in 2½ yd. capacity are important to you, so it's important that you check the P&H 955A right now. Get your copy of bulletin X-122 now!**

*Trademark of Harnischfeger Corporation for electro-magnetic type clutch

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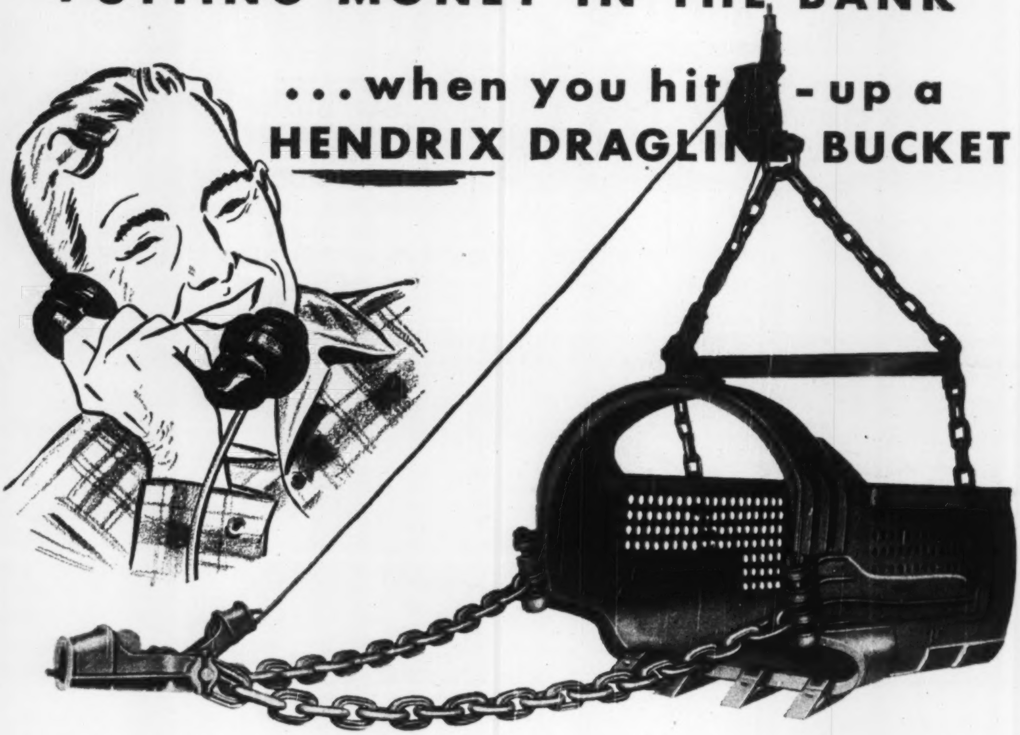
*LOOK TO P&H FOR ADDED VALUES*

*Excavators • Overhead Cranes • Hoists • Arc Welders and Electrodes • Soil Stabilizers • Crawler and Truck Cranes • Diesel Engines • Cane Loaders • Preassembled Homes*

# *I tell you, Bill . . . It's like*

## PUTTING MONEY IN THE BANK

## . . . when you hitch-up a HENDRIX DRAGLINE BUCKET



**3 TYPES FOR EVERY DIGGING PURPOSE**

**3/8 to 40 CUBIC YARDS**

That's what dirt contractors are saying to each other. Hitch-up a Hendrix Dragline Bucket for digging at lower cost per yard . . . more yards per minute. They know that Hendrix Buckets give them unsurpassed performance with minimum maintenance costs and delays resulting in BIGGER PROFITS ON EVERY JOB! A full load . . . smooth performance . . . clean dumping with less stress and strain on your dragline PLUS long life in heavy-duty service. THAT'S HENDRIX!

**HENDRIX** *Lightweight* **DRAGLINE BUCKETS**

*For descriptive literature ask your dealer or write*

**HENDRIX MANUFACTURING CO., INC.**

**MANSFIELD — LOUISIANA**

## IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

| | STRUCT. SHAPES-PLATE | REINF. BARS billet | RIVETS ⅞-in. structural | SHEET PILING Base | STEEL RAILS Per Net Ton Standard | STEEL RAILS Per Net Ton Light | STEEL RAILS Re-rolled | TRACK SUPPLIES Angle Bars | TRACK SUPPLIES Std Spikes | TRACK SUPPLIES Tie Plates | TRACK SUPPLIES Track Bolts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Birmingham Area.. | $3.40 | $3.45 | $7.25 | .... | $68.00 | $75.00 | Not | $4.40 | $5.35 | $4.20 | . .. |
| Chicago Area......... | 3.40 | 3.45 | 7.25 | $4.20 | 68.00 | 75.00 | avail- | 4.40 | 5.35 | 4.20 | .. |
| Pittsburgh Area.... | 3.40 | 3.45 | 7.25 | 4.20 | 68.00 | 75.00 | able | 4.40 | 5.35 | 4.20 | .... |
| Buffalo Area......... | 3.45 | 3.45 | 7.25 | 4.20 | 68.00 | 75.00 | ... | 4.40 | 5.35 | 4.20 | $8.50 |
| Cleveland.......... | .. | ... | 7.25 | .... | ..... | ..... | .... | .... | ... | ... | 8.50 |
| Youngstown Area.. . | .... | 3.45 | ... | .... | ..... | .... | .... | .... | 5.35 | .... | .... |
| Geneva.............. | 3.40 | .... | .... | ... | ..... | ..... | ... | .. . | .... | .... | .... |
| Los Angeles..... ... | .... | 4.05 | .... | .... | ..... | ..... | .... | .... | 5.35 | ... | .... |
| Pueblo.............. | 3.40 | 3.45 | .... | .... | 68.00 | 75.00 | .... | 4.40 | 5.35 | 4.20 | 8.50 |

## IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

| | STRUCTURAL SHAPES Per 100 lb base price | REINFORCING BARS Per 100 lb., base price *u* 5 tons to carload lot *b* New billet | Rail steel | Add switch | $/cwt for Del. | EXPANDED METAL LATH*k* Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb. | Std. ribbed 3.4 lb. | WELDED FABRIC REINFORCING*d* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires | 4x12 in., No. 8 & 12 wires | 6x6 in., No. 6 & 6 wires |
|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta.... .. | $4.75 | $5.225k | $5.225k | $.025 | $.10 | $31.50 | $31.50 | A.P.M.* Joliet, Illinois, Donora, Penn., $2.46<br>F.o.b. Mill: Monessen, Penn., $2.46 | A.P.M.* Joliet, Illinois, Donora, Penn., $1.75<br>F.o.b. Mill: Monessen, Penn., $1.75 | A.P.M.* Joliet, Illinois, Donora, Penn., $2.58<br>F.o.b. Mill: Monessen, Penn., $2.58 |
| Baltimore..... | 5.89 | 4.91l | .... | .... | .10 | 40.00 | 43.00 | | | |
| Birmingham... | 5.20 | 5.15 | 5.15 | .05 | .15 | 43.00p | 45.50p | | | |
| Boston.... | 5.75k | 5.56k | 5.56kc | .... | .10/.15 | 31.00 | 33.00 | | | |
| Chicago...... | 5.05 | 4.40ff | 4.40ff | .0625 | ... | 31.00‡ | 33.00‡ | | | |
| Cincinnati. .. | 5.59‡r | 5.59r | .... | .... | .... | 33.00see | 35.00-zee | | | |
| Cleveland...... | 5.17 | 4.47v | .... | .... | .10 | 34.00 | 36.50 | | | |
| Dallas......... | 6.75 | 5.30 | 5.30 | .... | .... | 43.50 | 46.00 | | | |
| Denver.... .. | 6.45 | 6.65e | .... | .... | .... | 47.00s | 54.50gs | | | |
| Detroit...... | 5.64‡ | 5.19n | ... | .... | .10 | 33.00 | 42.00 | | | |
| Kansas City... | 5.65 | 4.90d | ... | .... | .... | 37.00 | 39.00 | | | |
| Los Angeles.... | 5.50fhh | 5.25g | .... | .... | .15 | 37.00f | 41.00kk | | | |
| Minneapolis.... | 5.41hh | 6.02ll | 6.02ll | .... | .15 | 33.50 | 36.00 | | | |
| Montreal..... | 6.25i | 5.15i | 5.15g | .... | .... | 44.10h | 46.80h | | | |
| New Orleans... | ... | 5.40ok | ... | .05 | .10 | 38.50 | 41.00 | | | |
| New York..... | 5.45r | 5.58 | 5.33 | .... | .20 | 34.00st | 36.50st | | | |
| Philadelphia... | 5.25 | 5.55 | .... | .... | .... | 34.50‡ | 36.50‡ | | | |
| Pittsburgh..... | 4.90 | 4.90/5.10 | .... | .... | .10 | 32.50 | 34.50 | | | |
| St. Louis...... | 5.58k | 4.77c | 4.77c | .... | .... | 42.00aa | 48.00aa | | | |
| San Francisco . | 6.00ii | 5.75e | .... | .... | .15 | 37.50 | 40.00 | | | |
| Seattle.. .. | 4.05e | 5.35d | .... | .... | .... | 52.00smm | 42.00smmz | | | |

* At Producing Mill

‡ Delivered. *b* 1-5 tons, add 35c. Less than 1 ton, add 50c. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq. yd. *n* 5-10 tons. *o* 5 to 15 tons base. *p* Del. of 5000 sq. yd. or less. *q* Std. ribbed. 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra—1 in., 1¼ in., 1½ in. 10¢, ¾ in., ⅝ in. 15¢, ½ in. 25¢, ⅜ in. 50¢, ¼ in. 80¢, ⅛ in. $1.90. *v* Under 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales tax. *hh* 10,000-19,999 lbs. *ii* Rolled at Geneva mill. 400-3999 lbs. *kk* ⅜" ribbed. *ll* 5 to 8 tons. *mm* 2% off for cash.

## PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

| | C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a* | VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s. | std. 12 in. s.s. | 24 in. ds | 36 in. ds. | CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in. | 8 in. | CONCRETE SEWER PIPE Per ft., delivered; ASTMC 14-41 12 in. | 24 in. |
|---|---|---|---|---|---|---|---|---|---|
| Atlanta.......... | $89.50 | $0.43 | $0.67 | $3.39 | $7.00 | $114.00 | $140.00 | $0.45 | $2.00 |
| Baltimore........ | 93.86 | .51 | .98 | 3.95 | 10.00 | 220.00 | 341.00 | .80 | 2.25 |
| Birmingham..... | 82.50 | .40 | .72 | 2.84 | .... | 210.00‡ | 375.00‡ | .90 | 2.50 |
| Boston.......... | 97.46 | .413uvx | .8235uvy | 3.60uvy | 10.00uvy | 173.40 | 267.60 | 1.45‡mg | 3.60‡mg |
| Chicago.......... | 96.49 | .51 | 1.00 | 4.25 | 13.25 | 150.00‡ | 270.00‡ | .70 | 2.35 |
| Cincinnati....... | 94.90 | .455 | 8775 | 3.555 | 10.50 | 166.80‡ | 257.70‡ | .60 | 2.25‡ |
| Cleveland........ | 97.13 | .357x | .6885x | 3.015x | 8.405x | 147.50 | 231.00 | .65m | 2.50m |
| Dallas........... | 99.28 | 365 | .657 | 2.63 | 6.25 | ...... | ...... | .49 | 1.60 |
| Denver.......... | 104.36 | 41dd | .71dd | 2.98dd | . .. | ...... | ...... | .74dd | 2.50dd |
| Detroit.......... | 92.13 | .555 | 1.07 | 4.19 | 12.10 | 200.00m | 310.00m | .65 | 2.50 |
| Kansas City..... | 98.41 | .418m | .76m | .... | ..... | 215.00m | 375.00m | .60l | 2.00l |
| Los Angeles..... | 111.06 | .426 | .927 | 4.532 | 11.298 | 193.00‡ | 324.60‡ | .72 | .... |
| Minneapolis...... | 91.86/100.67 | .62mo | 1.12mo | 4.35mo | ...... | ...... | ...... | 1.29h | 3.67h |
| Montreal........ | 90.00 | .77s | 1.35s | 4.47s | 7.23es | ...... | ...... | 72.00jkaa | 218.00jkhaa |
| New Orleans..... | 92.68 | .453 | .82 | 4.41 | 8.85* | 235.00bb | 412.00bb | .65 | 2.29 |
| New York........ | 92.80/97.50 | .56 | 1.08 | 4.36 | 11.78 | ...... | ...... | 1.00 | 2.50 |
| Philadelphia..... | 90.47 | .54 | .99 | 4.08 | 10.28 | 235.00‡ | 300.00‡ | 1.25h | 3.20h |
| Pittsburgh....... | 97.76 | .36m | .70m | 2.70m | 6.625m | 147.50 | 230.00 | 1.05h | 2.50g |
| St. Louis ....... | 94.27 | .48 | .92 | 3.80 | 9.00 | ...... | ...... | 1.10il | 2.40hl |
| San Francisco.... | 111.06 | .55d | 1.08d | 4.68d | 11.70d | 195.00dl | 325.00dl | .69 | 2.85 |
| Seattle.......... | 112.95 | .51b | .91b | .... | .... | 150.00c | ...... | .80ee | 2.40ee |

### *WROUGHT STEEL PIPE

(Full standard weight)

| Mill | 2½ & 3 in., Butt Weld† Black % | 2½ & 3 in., Butt Weld† Galv. % | 3½ to 6 in., Lap Weld† Black % | 3½ to 6 in., Lap Weld† Galv % |
|---|---|---|---|---|
| Lorain, Ohio......... | 48.0 | 36.0 | .... | .... |
| Aliquippa, Pa........ | 48.0 | 33.0 | 43.0a | 27.5a |
| Sparrows Pt., Md.... | 46.0 | 31.0 | 40.0 | 24.5 |
| Benwood, W. Va...... | 48.0 | 33.0 | 43.0a | 27.5a |
| Youngstown, O....... | 48.0 | 33.0 | .... | .... |
| Indiana Harbor, Ind.. | 47.0 | 32.0 | 40.0 | 24.5 |
| Sharon, Pa........... | 48.0 | 33.0 | .... | .... |
| Wheatland, Pa........ | 48.0 | 33.0 | 43.0a | 27.5a |
| Etna, Pa............. | 48.0b | 33.0b | 42.0ab | 26.5ab |
| Fontana, Calif....... | 37.0b | 22.0b | 31.0ab | 17.0ab |

†Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld.

‡ Delivered. † F.o.b. *a* B. & S. class B and heavier, CL, Burlington, N. J. (base) $87.50. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $5 per ton additional. 30 in. and larger, usually $1 per ton less. *b* Extra strength ASTM C 200-44T. *c* 4-in., $90. *d* SS361-A. *e* 30 in. *g* Culvert pipe. Reinforced, ASTM C76-41. *h* Reinforced. ASTM C75-41. *i* Reinforced. ASTM C76-37. · Centrispun. *k* Per 100 ft. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum) *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *v* F.o.b. city. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa* No standard specification in Can. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL, delivered, f.o.b. truck. *ee* 1% off for cash. * Not stocked, only made to order.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢.; 3 in., 76½¢. *Lap weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steel pipe. Discount for Pittsburgh base. *Butt weld* — 1 in. and 1¼ in. black, +10.5, galv. +33.0; 1½ in. black, 4.5, galv. +29.5; 2 in. black, 4 galv. +29.0. *Lap weld* — 2½ in. to 3½ in. black + 11, galv. +32.5; 4½ in. to 8 in black + 8, galv. +28.0. Freight rates to destination to be added to name delivered price.

| | SHORT LEAF YELLOW PINE AND DOUGLAS FIR<br>All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box.<br>(Prices in Bold Face)<br>*All Fir boards, dimension, planks No. 2, Fir small timbers and timbers is No. 1. Lengths up to 20 ft.*<br>(*Prices in italics*) | | | | | | | | | LONG LEAF Y. P.<br>Merchantable grade up to 20 ft. | | PLYWOOD<br>Rail freight increment*<br>(See note for base *price*) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1x6 s4s | 1x8 s4s | 2x4 s4s | 2x6 s4s | 2x8 s4s | 2x10 s4s | 3x12 Rgh | 6x12 Rgh | 12x12 Rgh | 2x12 Rgh | 12x12 Rgh | 5/8" | 3/4" |
| Atlanta ........ † | **$70 00** | **$71.00** | **$60.00** | **$62.00** | **$65.00** | **$68 00** | **$70.00** | ...... | ...... | ...... | ...... | $22.32 | $27.24 |
| Baltimore ...... | **63.00** | **68.00** | **60.00** | **60.00** | **60 00** | **65.00** | **80 00** | ...... | ...... | $120.00 | $120.00 | 22.86 | 27.90 |
| | *76.00* | *76.00* | *76.00* | *76.00* | *76.00* | *76.00* | *84.50* | *$72.00* | *$72.00* | ...... | ...... | ..... | ...... |
| Birmingham ... | **73 00** | **76.00** | **63.00** | **65.00** | **68.00** | **75 00** | **85.00** | ...... | ...... | 115.00 | 125.00 | 21.78 | 26.58 |
| | *65.00* | *65.00* | *65.00* | *65.00* | *65.00* | *65 00* | *81.00* | *81.00* | *81.00* | ...... | ...... | ...... | ...... |
| Boston ......... | 86 00 | 86 91 | 91 00 | 91 00 | 91.00 | 96.00 | ...... | ...... | ...... | 114.00 | 114.00 | 22.86 | 27.90 |
| | *91/93* | *91/93* | *93/95* | *81/83* | *81/83* | *101/103* | *101/103* | *101/103* | *101/103* | ...... | ...... | .... | ..... |
| Chicago ....... ‡ | **80/83** | **82/84** | **72/74** | **81/83** | **84/85** | **85/87** | **90.00** | ...... | ...... | 114/116 | 114/116 | 18.72 | 22.80 |
| ‡ | *81/83* | *85/86* | *83/84* | *83/84* | *85/86* | *85/87* | *87.00* | *91/92* | *91/92* | ...... | ...... | ..... | ...... |
| Cincinnati ..... | **80 00** | **82 00** | **80 00** | **80.00** | **82 00** | **85 00** | **93/95** | ...... | ...... | ...... | ...... | 21.78 | 26.58 |
| | *83.00* | *85.00* | *83.00* | *83.00* | *90.00* | *92.00* | *95.00* | *93.00* | *93.00* | ...... | ...... | ...... | ...... |
| Cleveland ...... | **77.00** | **78.00** | **66.75** | **78.00** | **79.00** | **80.00** | *85.00* | *85.00* | *85.00* | ...... | ...... | 22.20 | 27.12 |
| Dallas ......... † | **54 00** | **60.00** | **60 00** | **53 00** | **56 00** | **57 00** | **90 00** | ...... | ...... | 83.00 | 90.00 | 18.72 | 22.80 |
| Denver ........ | *Not in stock* | | *86 00* | *85 00* | *85 00* | *85.00* | *104 00* | *114.00* | *112.00* | ... | ...... | 13.92 | 16.98 |
| Detroit ....... | **75 50** | **77 50** | **65 00** | **76 50** | **78.50** | **78 50** | **95.00** | ...... | ...... | **95.00** | ..... | 21.78 | 26.58 |
| | *77.50* | *77 50* | *85 00* | *84.00* | *84.50* | *82.25* | *85.00* | *85.00* | *85.00* | ...... | ...... | ...... | ..... |
| Kansas City .... | **100.00** | **100.00** | **90 00** | **95.00** | **95.00** | **100.00** | | ...... | ...... | *110.00* | ...... | 16.56 | 20.16 |
| # | *85.00* | *85.00* | *90 00* | *95.00* | *90.00* | *90.00* | *100.00* | *125.00* | ...... | .... | ..... | ...... | ...... |
| Los Angeles .... * | *71.00* | *71 00* | *71.00* | *71.00* | *71 00* | *71 00* | *82 00* | *100.00* | *82 00* | ..... | ...... | 13.38ab | 16.26ab |
| Minneapolis ... ‡# | *100.00* | *100.00* | *100.00* | *100 00* | *100.00* | *100 00* | *120.00* | *120.00* | *120.00* | ...... | ...... | 16.56 | 20.16 |
| Montreal ... ab | 70 00 | 74 00 | 70 00 | 72 00 | 75 00 | 83.00 | ...... | ...... | ... . | ..... | ...... | ...... | ..... |
| | *140 00* | *140 00* | *140.00* | *140 00* | *140.00* | *140.00* | ...... | *135.00* | ...... | ...... | ...... | ..... | ...... |
| New Orleans ... † | **66 00** | **70 00** | **70.00** | **75.00** | **75.00** | **70 00** | *85.00* | ...... | ...... | 100.00 | 105.00 | 18.72 | 22.80 |
| † | *68.70* | *68 70* | *71.00* | *75.00* | *72.50* | *72 50* | *67.00* | *67.00* | *100.00* | ...... | ...... | ...... | ...... |
| New York ... ‡ | **87.50/92.50** | **90/95** | **82.50/87.50** | **85/90** | **87.50/92.50** | **90/95** | **105 110** | ...... | ...... | 200/220f | 200/220f | 22.86 | 27.90 |
| ‡ | ...... | ...... | *Range from $92 50 to $97 50* | | | | *95/100* | *102.5/107.5* | *102.5/107.5* | ..... | ...... | ...... | ..... |
| Philadelphia ... | | | **Range from $88.00 to $97.00** | | | | 88/97 | ...... | .... | 180.00 | 180.00 | 22.86 | 27.90 |
| | | | *Range from $105.00 to $115 00* | | | | 105/115 | *105/115* | *105/115* | ...... | ..... | | |
| Pittsburgh ..... † | **75/80** | **75/80** | **75/80** | **75/80** | **75/80** | **75/80** | **100 00** | ...... | ...... | .... | ...... | 22.56 | 27.48 |
| † | *90/100* | *90/100* | *90/100* | *90/100* | *90/100* | *100/110* | *120/130* | *120.00* | *120 00* | ...... | ...... | ..... | .. |
| St. Louis ..... ‡c | **89 75** | **92 00** | **77.25h85.i** | **d 90 50** | **92 30e** | **92 50e** | ...... | ...... | ... .. | ...... | ...... | 18.72 | 22.80 |
| ‡c | ...... | .. | *94.75i100.25j* | *99 75e* | *99 75e* | *99.75e* | *117.25e* | *119.75* | *119.75* | . .. | ...... | ..... | |
| San Francisco .. † | *65 00* | *65 00* | *67 00* | *66.00* | *66.00* | *65.00* | *65 00* | *65.00* | *65.00* | .. .. | ...... | 10.08a | 12.30a |
| Seattle ...... † | *62 50g* | *62 50g* | *62 50g* | *62 50g* | *62.50g* | *62 50g* | *62 50g* | *62 50g* | *62.50g* | ...... | ...... | | |

† F.o.b. mill. ‡ Delivered. # Retail-LCL. * Yard prices.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8-12 ft. lengths. *e* 8-16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *h* 10-12 ft. lengths. *i* 8 ft. lengths. *j* 10-16 ft. lengths.

PLYWOOD: Special concrete form grade Fir Plywood, 4′ by 8′ panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 5/8", $150.00; on 3/4", $177.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

## GLASS, EXPLOSIVES, CHEMICALS

| | WINDOW GLASS<br>Discounts from jobbers list, Jan. 16, 1946*a*<br>Single or Double Thickness | | EXPLOSIVES<br>Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots* |
|---|---|---|---|
| | A quality | B quality | |
| Atlanta ............ | 76% | 76% | $0.2025 |
| Baltimore .......... | 66–10% | 67–10% | .2025 |
| Birmingham ......... | 67% | 67% | .1575 |
| Boston ............. | 60%*i* | 60%*i* | .2025 |
| Chicago ............ | 65% | 65% | .2025 |
| Cincinnati ......... | 66–10%*e* | 66–10%*e* | .2025 |
| Cleveland .......... | 66–10–10–10% | 66–10–10–10% | .2425 |
| Dallas ............. | 65% | 65% | .215 |
| Denver ............. | 67% | 67% | .2075 |
| Detroit ............ | 66-10-10% | 66-10-10% | .2025 |
| Kansas City ........ | 65%*e* | 65%*e* | .2075 |
| Los Angeles ........ | 58% | 63%*f* | .21 |
| Minneapolis ........ | 64% | 64% | .2075 |
| Montreal ........... | 40–5%*bc* | 40–10–5%*bc* | 18 50*hi* |
| New Orleans ........ | 68% | 68% | .2125 |
| New York ........... | 71% | 72% | .32*g* |
| Philadelphia ....... | 69% | 70% | .2025 |
| Pittsburgh ......... | 70% | 70% | .175 |
| St. Louis .......... | 70–10% | 70–10% | .2075 |
| San Francisco ...... | 66% | 73% | .2075 |
| Seattle ............ | 54% | 55% | .21 |

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

*Glass;* *a* Jobbers' list price per box, 14 x 20, ss, $20.75 for A quality, $18.00 for B quality; 14 x 20, ds, $30.75 for A quality, $26.00 for B quality. *b* Discount from list, Sept. 1939; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *e* Discount from list of Aug. 15, 1938. *f* ss; ds—62%. *i* Double thickness 65%.

*Explosives;* * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $19.90. *i* F.o.b. Beloeil (near Montreal).

**40% Ammonia Gelatin price ranges in other than urban areas, per lb.**
**(except Seismograph Grades)**

| | C/L 20,000 lb. net | Tons | 200 lb. lots |
|---|---|---|---|
| E. of the Miss., except Fla. and Me. | $0.155 | $0.1825 | $0.2025 |
| W. of Miss. to Rocky Mtn. States, Fla. and Maine ............... | .16 –.1675 | .1875–.20 | .2075–.22 |
| Rocky Mtn. States ............ | .16 –.1725 | .1875–.20 | .2075–.225 |
| Pacific N. W. States ........... | .1575–.17 | .19 –.2025 | .21 –.2225 |
| Pacific S. W. States ........... | .155 –.1625 | .1875–.195 | .2075–.2175 |

## PILES, TIES F. O. B.

### PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

| | | | By Rail | |
|---|---|---|---|---|
| Dimensions | Points | Length | Pine* | Fir |
| 12-in. at butt ............... | 6-in. | 30 to 50-ft. | $0.43 | .... |
| 12-in.— 2-ft. from butt ....... | 6-in | 50 to 59-ft. | .46 | .... |
| 12-in.— 2-ft. from butt ....... | 6-in. | 60 to 69-ft. | .50 | .. |
| 12-in.— 2-ft. from butt ....... | 6-in. | 90 to 100-ft. | .... | .79 |
| 13-in.— 3-ft. from butt ....... | 5-in. | 91 to 100-ft. | .... | .80 |
| 14-in.— 2-ft. from butt ....... | 6-in. | 50 to 69-ft. | .50 | .87 |
| 14-in.— 2-ft. from butt ....... | 6-in. | 70 to 79-ft. | .54 | .81 |
| 14-in.— 2-ft. from butt ....... | 5-in. | 80 to 85-ft. | .67 | .82 |
| 14-in.— 2-ft. from butt ....... | 5-in. | 85 to 89-ft. | ... | .83 |
| 14-in.— 2-ft. from butt ....... | 5-in. | 90 to 100-ft. | .... | .87 |

* Pine piling over 80-ft. available only in limited quantities.

### RAILWAY TIES

| Prices f.o.b. per tie for carload lots: | | 6"x8"x8' | | 7"x9"x8'6" | |
|---|---|---|---|---|---|
| | | Untr. | Tr. | Untr. | Tr |
| Boston ......... | Oak ............... *i* | ... | ..... | .... | ..... |
| | Pine ............... *i* | .... | .... | .... | .... |
| New York ...... | S. L. Sap Pine ...... | $1.65 | $2.85 | $2.00 | $3.30 |
| | Mixed Oak .......... | 1.80 | 3.05 | 2.50 | 3.60 |
| Birmingham .... | Hardwood .......... | 1.00 | 1.60*a* | .... | 2.25*a* |
| Chicago ........ | Red Oak ........... | .... | 2.50/2.60*a* | .... | 3.52/3.45*a* |
| Los Angeles .... | Douglas Fir ......... | .... | .... | .... | . |
| | Redwood ........... | .... | .... | .... | ... |
| Philadelphia ... | Red Oak ........... | 2.33 | 3 13*a* | 3 10 | 4 75*a* |
| St. Louis ....... | White Oak .......... | 2.65 | .... | 3.40 | .... |
| | Red Oak ........... | 2.55 | 3 25*a* | 3.35 | 4.10*a* |
| | Sap Pine or Cypress . | 3.15*a* | .... | 4 00 | ... |
| San Francisco ... | Douglas Fir ......... | 1.28*e* | 2.24*cf* | 1 70*bf* | 3.05*caf* |
| Montreal ....... | Birch or Maple ...... | ....*h* | . . *h* | .. *h* | ... *h* |

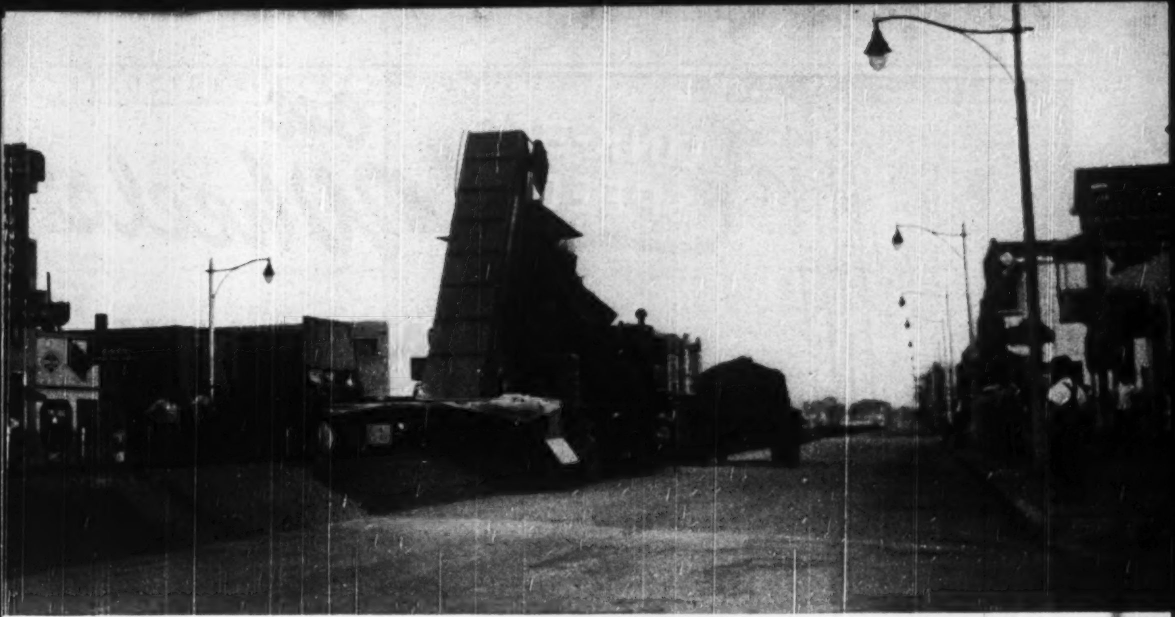
Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8′. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available

### CHEMICALS

**Water, sewage treatment, road work, f.o.b. carlots, New York**

| | |
|---|---|
| Bleaching powder in drums f.o.b. works, per 100 lb. ............ | $4.50 |
| Chlorine cylinders, liquid, per lb. f.o.b. works ................ | .07–.12 |
| Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton ............ | 22.00 |
| Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb. ...... | 1.80 |
| Soda ash, 58%, in paper bags, per 100 lb. dense .............. | 1.35 |
| Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works.. | 1.50 |
| Sulphate of copper, in bags, 99% per 100 lb f.o.b. works...... | 7.00 |

(Continued on page 79)



# HIGH building speed

# WIDE economies

# AND

# HANDSOME durable roads

● For Main Street or highway, asphalt resurfacing provides a rapid and economical means of restoring a smooth-riding, easy-to-maintain surface to any worn or broken pavement.

**High building speed**—Easier laying of asphalt, use of lighter and faster equipment, rapid setting of asphalt paving . . . all of these help to speed road construction.

**Wide economies**—Asphalt resurfacing offers a variety of savings. Faster jobs mean fewer man-hours and lower labor costs. Material expenses are at a minimum. Aggregate that is already on the road or close at hand can be used. Maintenance costs are low because the upkeep necessary for asphalt-resurfaced roads takes a minimum of time, labor, and materials.

**Handsome, durable roads**—The unbroken, black surfaces of asphalt provide both good appearance and riding comfort. Here, too, is durability that's hard to match. Asphalt and heavy aggregate, mixed, make strong road foundations. Top courses of asphalt, stone, and sand present long-wearing, waterproof surfaces.

● A Standard Oil Asphalt Department Representative can suggest economical types of asphalt construction to meet your needs and local conditions. You are assured prompt delivery of Standard Oil Asphalt from any of five large refineries located throughout the Midwest. Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

**STANDARD OIL**

**ASPHALT**

**STANDARD OIL COMPANY (INDIANA)** STANDARD

# a LINK-BELT SPEEDER *on Wheels*

# HAS MANY ADVANTAGES!

The high mobility of a wheel-mounted machine coupled with the outstanding performance features of a Link-Belt Speeder Shovel-Crane provides an exceptional combination of advantages.

So Link-Belt Speeder has developed not one but six different types and sizes of wheel-mounted Shovel-Cranes—self-propelled or two-engine truck-mounted models—to meet the broadest variety of needs.

From the tip of the boom to the ground, these machines incorporate many exclusive features of Link-Belt Speeder design, to assure greatest stability in handling extremely heavy loads, and maximum mobility in moving from job to job.

In every principal city in the U. S. and Canada, and in foreign lands, a Link-Belt Speeder distributor with stocks of genuine parts and factory trained personnel is ready to aid in keeping Link-Belt Speeder products in top working condition.

11,705

**LINK-BELT SPEEDER**

LINK-BELT SPEEDER CORPORATION,
CEDAR RAPIDS IOWA

*Builders of the Most Complete Line of*
**SHOVELS-CRANES-DRAGLINES**

## STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

| | STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in. | 4x12x12 in. | 8x12x12 in. | STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 4,000 pieces or over. 8x12x12 in. | 10x12x12 in. | 12x12x12 in. | BRICK Per M. in quantity Common backing | Straight hard | LIME Per ton, In paper, Carload lot, Hydrated finishing | Common hydrated | Pulverized, or lump |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | ...... | ...... | ...... | ...... | .... | ...... | $25.00 | $25.00 | $19.00 | $17 50 | $17.50 |
| Baltimore | $175.00 | $185.00 | $325.00 | $380.00 | ...... | ...... | 32.00k | 35.00k | 26.00 | 20.00 | ..... |
| Birmingham | 97.50 | 104.00 | 195.00 | 231.00 | ...... | ...... | 20.00ff | 22.50gg | 24.74 | 16.30 | ..... |
| Boston | 140.00† | 149.00† | 280.00† | 317.00† | ...... | ...... | 32.00i | 35.00s | 30.80† | 26.40† | ..... |
| Chicago | 115.00 | 122.50 | 230.00 | ...... | ...... | ...... | 21.00 | 23.00 | 28.50 | 23.00 | ..... |
| Cincinnati | 170.00j | 180.00j | 240.00jdd | 295.00j | ...... | ...... | 32.25j | 44.00j | 24.25j | 24.25j | 24.25 |
| Cleveland | 118.00cc | 126.00cc | 236.00cc | ...... | ...... | ...... | 28.50 | 28.50 | 24.00 | 22.00 | 27.50ee |
| Dallas | ...... | 110.00 | ...... | ...... | ...... | ...... | 18.75 | 33.25 | 28.00 | 22.00 | ..... |
| Denver | ...... | ...... | ...... | ...... | ...... | ...... | 32.00 | 32.00 | 34.80bb | 28.00bb | 34.00bb |
| Detroit* | 117.08 | 124.88 | 234.15 | 234.15 | $290.68 | $332.20 | 31.50cc | 30.00cc | 28.00 | 26.50 | ..... |
| Kansas City | 115.00 | 122.50 | ...... | ...... | ...... | ...... | 22.63o | 25.12o | 36.00p | 30.00p | 30.00p |
| Los Angeles | r | r | r | r | r | r | 20.00§ | .... | 36.00 | 36.00 | 32.00 |
| Minneapolis | 158.00p | 176.00p | 330.00p | 176.00wp | ...... | ...... | 30.00vp | 34.00 | 35.00bbe | 26.00bbe | 35.00bbde |
| Montreal | 115.00aq | 125.00aq | 225.00aq | ...... | ...... | ...... | 25.50 | 35.50 | 22.40u | .. | 22.40 |
| New Orleans | 160.00 | 160.00 | 300.00 | ...... | ...... | ...... | 29.00 | ..... | 38.00 | 26.00 | 37.50 |
| New York | 118.20h | 126.00h | 173.30ch | 189.50hn | ...... | ...... | 33.00 | ..... | 34.40 | 26.80 | ..... |
| Philadelphia | 126.30 | 134.80 | 252.60 | 302.74 | 361.35 | 455.74 | 27.00 | 30.00 | 31.00 | 19.50 | 24.50 |
| Pittsburgh | 98.00 | 105.80 | 181.85 | 207.30 | 265.35 | 303.60 | 26.00 | 38.00y | 24.00 | 19.00 | 2.97m |
| St. Louis | 120.00 | 138.50 | 252.50 | 252.50 | 339.50 | ...... | 32.50al | 30.50al | .60/.80saap | .60saap | 1.00aaspes |
| San Francisco | 132.00a | 148.50a | 198.00dda | 148.50ta | ...... | ...... | 33.00 | ..... | 25.30 | 25.30 | 2.49m |
| Seattle | 150.00cc | 160.00cc | ...... | 160.00ccw | ...... | ...... | 32.00s | 39.00s | 34.00shh | 34.00shh | 3.60mhh |

† F.o.b. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *f* 5¼ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *i* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7¾ x 7¾ x 12. Speed tile. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5¼ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant. * All load-bearing, non-load-bearing no longer mf'd in Detroit.

## PAINT, ROOFING—F.O.B. CARLOAD LOTS

| | RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl Dry *a* | WHITE LEAD Per 100 lb. in 100 lb cases In oil *w* | READY-MIXED PAINT Per gal., drums Graphite *b* | Aluminum *c* | Ferric Oxide *d* | ROOFING SUPPLIES Carload lots f.o.b. factory Rolls slate surfaced, 85-90 lb. per sq. | Asphalt felt, per 100 lb. | Tar felt, per 100 lb. | Asphalt coating per gal. | Tar pitch 360 lb. bbl. per ton |
|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $16.00 | $26.375 | $1.75 | $2.70 | $1.65 | $2.06‡ | $2.06‡ | $2.06‡ | $1.00‡ | $36.00‡ |
| Baltimore | 15.75 | 26.00 | 2.10 | 4.27 | 2.90 | 2.96 | 3.94 | 3.94 | .55 | 36.00 |
| Birmingham | 16.00 | 26.375 | 3.90 | 3.40 | .... | 2.80 | 2.75 | 2.75 | .... | 40.50ee |
| Boston | 15.75 | 26.00 | .... | .... | .... | 2.68h | .... | 2.67‡q | .36 | 34.00 |
| Chicago | 15.75 | 26.00 | .... | .... | .... | 2.34‡u | 2.54‡o | 2.54‡o | 34.00‡bbv | 37.00‡ |
| Cincinnati | 15.75 | 26.00 | 2.90 | 2.90 | .... | 2.44‡ | 2.54‡o | 2.54‡o | .35y‡ | 40.80‡ |
| Cleveland | 15.75 | 26.00 | 2.85p | 2.75s | 2.35 | 2.32 | 2.41o | 2.41o | .30y | 32.00 |
| Dallas | 16.00 | 26.75 | .. | 4.05 | .... | 3.50q | 3.75o | 4.35o | .36 | 46.00 |
| Denver | 16.25 | 26.50 | 2.63 | 4.38 | 2.48 | 3.20o | 2.20o | 2.20o | .41ff | 40.00 |
| Detroit | 15.75 | 26.00 | 2.50/2.60 | 3.00/3.40 | 2.50/2.60 | 2.20 | 2.29f | 2.29 | .397 | 33.00 |
| Kansas City | 15.75 | 26.125 | .... | .... | .... | 1.65e | .... | .... | .... | ...... |
| Los Angeles | 15.75 | 26.25 | 2.80 | 3.75 | 3.50 | 2.41 | 1.91e | l | .45 | l |
| Minneapolis | 15.75 | 26.125/28.55 | .... | .... | .... | 2.20idd | 2.29hidd | 2.29hidd | .336idd | 34.00v |
| Montreal | ..... | 22.00 | 3.75t | 4.20t | 3.62t | 3.25t | 3.00tf | 3.00tf | .70t | 2.60k |
| New York | 15.75 | 26.00 | 3.45y | .... | 3.45 | 2.32 | 2.41o | 2.41o | .34s | 35.00 |
| Philadelphia | 15.75 | 26.00 | 3.25 | 3.65 | 3.15 | 2.54 | 2.94 | 2.94 | .37 | 26.00 |
| Pittsburgh | 15.75 | 26.00 | 2.00 | 2.00 | 1.90 | 2.78 | 2.81o | 2.81o | .37 | 38.00 |
| St Louis | 15.75 | 26.00 | .. | .... | .... | 2.20 | 2.42h | 2.42h | .41 | 35.00 |
| San Francisco | 15.75 | 26.25 | 1.80 | 2.75n | 1.35 | 2.27 | 3.30aa | .... | .38g | ... |
| Seattle | 15.75 | 26.50 | 2.67m | 2.67ta | . | 3.23mqcc | 3.24hmcc | ... | .41mcc | 48.25jmc |

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U S. War Dept. Spec 3-49A. *c* ASTM Spec D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *h* Per roll, 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* May, 1941 price. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per [illegible] lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums.

## SKILLED AND COMMON WAGE RATES—PER HOUR

| | Bricklayers | Carpenters | Struct. Iron Workers | Hoisting Engineers | Plasterers | Electrical Workers | Steamfitters | Common Labor Building | Heavy Const |
|---|---|---|---|---|---|---|---|---|---|
| Atlanta | $2.50 | $1.85 | $2.125 | $2.00 | $2.25 | $2.25 | $2.00 | $0.85 | $0.95 |
| Baltimore | 3.00 | 2.20d | 2.55e | 2.40/2.60 | 2.25 | 2.25 | 2.25 | 1.25 | 1.25 |
| Birmingham | 2.50 | 1.95 | 2.20 | 1.875 | 2.20 | 2.25 | 2.25 | 1.00 | 1.10 |
| Boston | 2.625 | 2.25 | 2.55 | 2.60 | 2.70 | 2.50 | 2.45 | 1.65 | 1.65 |
| Chicago | 2.55 | 2.45 | 2.50 | 2.45 | 2.55 | 2.525 | 2.45 | 1.80 | 1.80 |
| Cincinnati | 2.575 | 2.25 | 2.425 | 1.60/2.60 | 2.425 | 2.45 | 2.40 | 1.535 | 1.535 |
| Cleveland | 2.575 | 2.575ϕ | 2.575 | 2.525 | 2.525 | 2.525 | 2.575 | 1.85 | 1.725 |
| Dallas | 2.50†f | 2.125g | 2.25f | 2.25f | 2.50†f | 2.375f | 2.375f | 1.075g | 1.275/1.50g |
| Denver | 3.00 | 2.10 | 2.10 | 2.25 | 2.50 | 2.41 | 2.40 | 1.40 | 1.45 |
| Detroit | 2.625 | 2.325 | 2.575 | 2.575 | 2.625 | 2.60 | 2.50 | 1.675 | 1.675 |
| Kansas City | 2.60 | 2.15 | 2.30 | 2.375 | 2.75 | 2.30 | 2.375 | 1.575 | 1.575 |
| Los Angeles | 2.625 | 2.12 | 2.38 | 2.07 | 3.125a | 2.50 | 2.50 | 1.57 | 1.57 |
| Minneapolis | 2.40 | 2.12 | 2.275 | 2.07 | 2.50 | 2.35 | 2.32 | 1.52 | 1.52 |
| New Orleans | 2.50 | 1.875 | 2.25 | 2.125 | 2.175 | 2.30 | 2.25 | 1.025 | 1.025 |
| New York | 3.20b | 2.75b | 3.00 | 3.00 | 3.20a | 3.00a | 2.75b | 1.70 | 1.70 |
| Philadelphia | 3.00 | 2.34/2.40 | 2.65 | 2.50 | 3.00 | 2.75/3.00 | 2.75 | 1.375 | 1.675 |
| Pittsburgh | 3.00 | 2.50 | 2.625 | 2.65 | 2.625 | 2.575 | 2.50 | 1.50 | 1.50 |
| St. Louis | 2.833c | 2.45h | 2.50 | 2.55 | 2.50 | 2.50 | 2.50 | 1.60 | 1.50/1.75 |
| San Francisco | 2.8125 | 2.225 | 2.50 | 2.19 | 3.00 | 2.50 | 2.50 | 1.55 | 1.55 |
| Seattle | 3.00 | 2.195 | 2.395 | 2.33 | 2.495 | 2.395 | 2.50 | 1.795 | 1.83 |
| Montreal* | 1.40 | 1.25 | 1.25 | 1.20 | 1.40 | 1.35 | 1.55 | 90 | 80 |

*a* 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund eff. 7/49. *d* 5¢/hr. reduction pending a new 2-yr. contract. *e* 10¢ reduction eff. until May 1, 1950, when an increase of 10¢/hr. goes into effect.

* Cost of living bonus now included in basic wage. ϕ Includes 10¢ per hr. tool replacement. † Plus $5.00 daily bonus. *f* Double overtime. *g* 1½ overtime. *h* $2.20 homes and housing +5¢ vacation fund.

## MEXICO CITY PRICES

| In Pesos, F.o.b. City | | Dec. '49 | Jan. '50 |
|---|---|---|---|
| Common Wages—Building (8 hr. day) | av. per hr. | .57 | .57 |
| Common Wages—Heavy Const. (8 hr. day) | av. per hr. | .75 | .75 |
| Skilled Labor Wages | | | |
| Carpenters (8 hr. day) | av. per hr. | 1.25 | 1.25 |
| Bricklayers (8 hr. day) | av. per hr. | 1.25 | 1.25 |
| Struct. Iron Workers (8 hr. day) | av. per hr. | 1.50 | 1.50 |
| Struct. Steel Shapes | | | |
| 3"-15" x 12 meters | per ton | 1,050.00 | 1,050.00 |
| Reinf. Steel, Corr. Rods | | | |
| ¼" x 11 meters | per ton | 1,075.00 | 1,010.00 |
| ⅜" x 11 meters | per ton | 1,065.00 | 1,000.00 |
| ½" x 11 meters | per ton | 1,055.00 | 990.00 |
| ⅝" x 11 meters | per ton | 1,045.00 | 980.00 |
| ¾" x 11 meters | per ton | 1,045.00 | 980.00 |
| 1" x 11 meters | per ton | 1,045.00 | 980.00 |
| Gravel truck load of 3½ cu. meters | | | |
| Blue Gravel | per tr. load | 30.00 | 32.00 |
| Rose Gravel | per tr. load | 28.00 | 30.00 |
| Cement, Std. Port. (Toltera) | per ton* | 120.00 | 115.00 |
| Lumber | | | |
| Mex. Sacred Fir (Oyamel) | per M ft. | 400.00 | 400.00 |
| 1st Class Pine | per M ft. | 750.00 | 750.00 |
| 2nd Class Pine | per M ft. | 480.00 | 480.00 |

**ENR Skilled Average:** (Bricklayers, Carpenters, Ironworkers) $2.466. **ENR Common Average:** $1.485.

HAISS LOADER IN ACTION
(Note the full Buckets)

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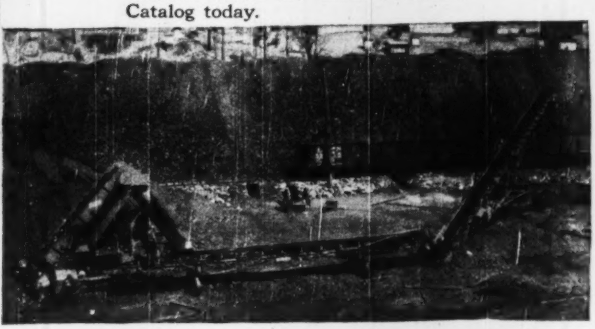

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Belt and drag types for low-cost undercar unloading from hopper bottom cars. Ask for bulletin No. 483-4.

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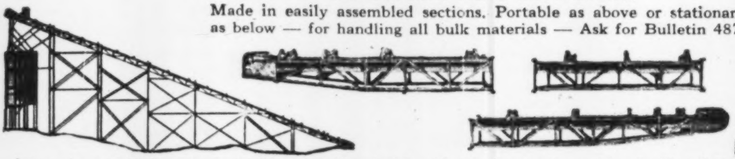
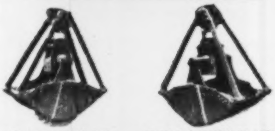


## •BUCKETS



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NEW YORK, N. Y.

UNIVERSAL
CEDAR RAPIDS, IOWA.

# CONSTRUCTION REPORTS

## Bids Asked—Low Bidders—Contracts Awarded

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.*

*ELSIE EAVES, Manager* *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

### WATER SUPPLY

**LOW BIDDERS**

**Ky., Madisonville**—City, rejected bids Nov. 1, WW. imprvs. $187,000. Revising plans. CD 10/24.

**CONTRACTS AWARDED**

**Wash., Seattle**—Port of Seattle, Bell St. Terminal, Zone 1, 300,000 gal. elevated tank, to American Pipeland Constr. Co., 518 N. E. Columbia Blvd., Portland, Ore. **$46,586.** Est. $70,000. Bids 1/24. CD 1/17.

**B. C., Esquimalt**—Central Mortgage & Housing Corp., 360 Homer St., Vancouver, installing water distr. sys. at the D.N.D. Housing, Belmont Park, to G. W. Ledingham & Co. Ltd., 1025 W. 77 Ave., Vancouver. Approx. **$97,000.** Bids 12/22, awarded 1/23. CD 12/15.

### SEWERS, WASTE DISPOSAL

**LOW BIDDERS**

**Calif., Bryte**—Bryte Sanitary Dist., Bryte, Jan. 23, collection sewers, from Lentz Constr. Co., 2416 Sutterville Rd., Sacramento, **$102,303.** CD 12/30.

**CONTRACTS AWARDED**

**Calif., Arcata**—City, City Hall, sewage treatment plant. to Mercer Fraser Co. Inc., 2nd and Commercial Sts., Eureka, **$79,000.** Bids 1/20. CD 12/12.

**B. C., Esquimalt**—Central Mortgage & Housing Corp., 360 Homer St., Vancouver, install separate sanitary sewerage and storm sewerage sys., at D. N. D. Housing, Belmont Park, to G. W. Ledingham & Co., Ltd., 1025 W. 77 Ave., Vancouver. Approx. **$146,000.** Bids 12/30, awarded 1/23. CD 12/15.

### BRIDGES

**BIDS ASKED**

† **Oregon**—B.A. 2/21—U. S. Eng., 628 Pittock Block, Portland, Zone 5, reconstruct swing bridge at Bonneville Dam, CIVENG-35-026-50-240.

**LOW BIDDERS**

**Alabama**—State Hy. Dpt., Montgomery, Jan. 20, 0.159 mi. bridges road between Texasville and Ala. No. 10 northwest of Blue Springs, Barbour Co., from H. C. Jordan, Ozark, **$64,088*****0.098 mi. bridge over Ohatchee Creek, near Boiling Springs, Calhoun Co., from Worsham Bros., Corinth, Miss., **$64,128*****0.222 mi. bridge and approaches U. S. 29 at Longdale, Chambers Co., from East Alabama Constr. Co., Alexander City, **$71,987*****0.111 mi. bridges on Hancesville—Holly Pond Rd., Cullman Co., from G. W. Norrell Contg. Co., Georgiana, **$92,870.** CD 12/21.

**New York**—Dpt. P. Wks., B. D. Tallamy, supt., Albany, Jan. 25, Smokes Creek Bridge, 0.01 mi. Hamburg Turnpike, Lackawanna City, FAC 50-2, Erie Co., from R. DiAngelo, 147 Park Ave., Binghamton, **$59,412.** Est. $69,000. CD 1/5.

**CONTRACTS AWARDED**

† **Oregon**—U. S. Eng., Pittock Block, Portland, Zone 5, fabrication, erecting bridge superstructures for 2 lower river overflow crossings, a lower main river crossing and highway underpass structure on Southern Pacific R. R. and State Hy. 58 relocation, Lookout Point (Meridian) reservoir, Lane Co., CIVENG-35-026-50-181, to American Bridge Co., 2345 N. W. Nicolai St., Portland, **$431,836.** Est. $557,610. Bids 1/24.

### STREETS AND ROADS

**BIDS ASKED**

**Calif, Los Angeles**—B.A. 2/21—Bd. Supervs. Los Angeles Co., 501 Hall of Records, imprv. 8,300 lin. ft. Valley Blvd. between Garvey and Rumford Aves. and Covina to Puent Ave., C.C 0-650. $50,000. C. E. Arnold, co. engr.

† **Virginia**—B.A. 2/21—Bureau Pub. Roads, Dpt. Commerce, 1440 Columbia Pike, Arlington.

**Arlington Co.**—construct Proj. 6A17, Part B George Washington Memorial Parkway. Plans deposit $10.

**LOW BIDDERS**

**Alabama**—State Hy. Dpt., Montgomery, Jan. 20, single surf. tr. 4.12 mi. from Alabama No. 18 at Crossville north to the Blooming Grove, Lamar Co., from McKee Constr. Co., Jackson, **$55,939*****double surf. tr. 12.091 mi. road from Piedmont toward Centre, Calhoun and Cherokee Counties, and double surf. tr. 9.692 mi. road from Henagar to Hammondville, DeKalb Co., from J. W. Gwin, Jr., Comer Bldg., Birmingham, **$97,749** and **$79,786** respectively***grading, drainage, and bridges 6.858 mi. Cullman-Lacon Rd., Cullman and Morgan Counties, and grading 11.511 mi. road from Windham Springs to Walker Co. line, Tuscaloosa Co., from Hardaway Contg. Co., 15 11 St., Columbus Ga., **$329,237** and **$425,847** respectively***double surf. tr. 1[illegible]4 mi. road from Mellow Valley to Wadley, Clay and Randolph Counties, from J. B. Maynard, Alexander City, **$126,182*****double surf. tr. 9.117 mi. Alabama No. 69 from Tuscaloosa Co. line north to Marietta, Walker Co., from W. L. Cobb Constr. Co., Decatur, Ala., **$140,788*****single surf. tr. 13 mi. road from Chatom to Mississippi line, Washington Co., from Waller & McDowell, Greenville, **$171,067.** CD 12/28 and 12/21.

▲ **New York**—Dpt. P. Wks., B. D. Tallamy, supt., Albany, Jan. 25, 2.51 mi. Van Wyck Expressway Cont. 6-A, Archer Ave. to South Conduit Ave. FA. VWE, Queens Co., from Hudson Contg. Corp., 152 Onslow Pl., Kew Gardens, **$1,265,232,** est. $1,798,000***4.52 mi. Bronx River Parkway, south extens. (Bruckner Blvd. to E. 223 St.), FA BRP 50-1, Bronx Co., from John C. Peterson Constr. Corp., 958 Church St., Baldwin, **$1,657,026,** est. $2,065,000***0.36 mi. Newburgh-Woodbury S.H. 42, Moodna Bridge-Newburgh, Pt. 2 and Pt. 2A, FA.RC. 50-1, FA.SH. 50-1, FA. C. 50-1, Orange Co., from Shanahan Constr. Co., Inc. Box 21, Ellenville, **$542,051,** est. $650,000***0.11 mi. separation of grades of New York Central R.R. (Harlem Div.) with Bronx River Parkway Southerly extens., FG. BRP. 50-2, Bronx Co., from Horn Constr. Co., Inc., 1776 Broadway, New York, **$728,907,** est. $939,000. CD 1/5.

**CONTRACTS AWARDED**

**Massachusetts**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, state hy. and bridge constr. D1-(62), Newburyport Turnpike, Maple St., Danvers to C. C. Smith Co., Inc., 37 French Terrace, Watertown. **$583,342.** Bids 1/10, awarded 1/24. CD 1/27, under LB.

**Washington**—State Hy. Dpt., Olympia, grading, draining and surf. light bit. surf. tr. 2.311 mi. Primary State Hy. 7, Lamona East, F.A.P. No F-034-2 (3), Lincoln Co, to Goetz & Brennan, Seaboard Bldg., Seattle, Zone 1. **$144,075.** Bids 1/24. CD 1/11.

**Ont., Chatham**—Kent Co. Council, Chatham, county road work, incl. new pavements, maintenance, own forces. **$318,000.** W. Colby, County Bldgs., engr.

### EARTHWORK, WATERWAYS

**BIDS ASKED**

**Wis., Milwaukee**—B.A. 2/20—Bd. Harbor Comn., dock work, incl. removal 600 ft. outside channel wale and install 600 ft. inside channel wale; dredging channels 200 ft. wide on both sides new tanker pier; constr. tanker pier, fender sys.; rein.-con. deck, $350,000. Plans deposit $10. J. P. Schwada, city engr. CD 7/21.

† **Minnesota**—B.A. 2/21—U. S. Eng., 1217 U. S. P. O. and Custom House, St. Paul, Zone 1, channel imprv. on Red Lake River, Stage 3; adv. ENR 2/2. CD 1/25.

† **Iowa**—B.A. 2/2[illegible]—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., Upper Approach Channel dredging, Lock and Dam 10, Mississippi River, Gutenberg; adv. ENR 2/2. CD 1/24.

† **Missouri—B.A.** On or **About 2/28—U. S. Eng.,** 1709 Jackson St., Omaha, Neb., Agricultural Levee Unit L-550, Sects. 2 to 9 (inclusive), along left bank of Missouri River, from mouth of Nishnabotna River to Brownville Bridge, Atchison Co., Serial No. CIVENG 25-066-50-23. CD 8/2.

**LOW BIDDERS**

† **California**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., rejected bids Dec. 22, 254,000 lin. ft. 10-to-18-in. standard concrete irrigation pipe and 342,000 lin. ft. 12- to 72- rein.-con. pipe, Central Valley Proj., Spec. 2853, concrete pipe, tongue and groove ends, 7 ft. 9 in. minimum laying lengths, Schedule 4, Ivanhoe Irrigation Dist., L.B. **$195,330;** Schedule 5, Lindmore Irrigation Dist., Unit 3, L.B. **$396,258*****Schedule 6, Southern San Joaquin Municipal Utility Dist., Unit 3, L.B. **$119,389*****concrete pipe, rubber gasket joints 7 ft. 9 in. minimum laying lengths for Schedule 7, Ivanhoe Irrigation Dist., L.B. **$232,600*****Schedule 8, Lindmore Irrigation Dist., Unit 3, L.B. **$480,271*****Schedule 9, Southern San Joaquin Municipality Dist., Unit 3, L.B. **$134,436*****concrete pipe, tongue and groove ends 2 ft. minimum laying lengths, Schedule 1, L.B. **$88,645*****Schedule 2, L.B. **$123,780*****Schedule 3, L.B. **$78,300.** CD 1/5, under LB.

† **Colorado**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Jan. 18, completion Granby Pumping Plant, between Granby and Grand Lake, southeast of U. S. Hy. 34, Colorado-Big Thompson Proj., Spec. 2859, from Eichleay Corp., 926 Howard St., San Francisco, Calif., **$259,204.** CD 12/21.

† **Colorado**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Jan. 19, constr. Olympus siphon, Station 57 plus 68.97 to 87 plus 40.00 and access road Estes Park-Foothills Power Aqueduct, Colorado-Big Thompson Proj., Spec. 2871, from Peter Kiewit Sons Co., 1960 South Colorado Blvd., Denver, **$324,921.** CD 12/23.

† **Ky., Uniontown**—PUMPING PLANTS—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, Jan. 24, 4 pumping plants, sewers, 4 transformer substations, etc. Serial No. CIVENG-15-029-50-34, from Willis S. Wilson, Huntington, W. Va., **$177,535.** Est. $164,306. CD 12/19.

**CONTRACTS AWARDED**

† **Arizona and Nevada**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver Colo., Schedule 2, four supervisory control and telemetering switchboards and equip. and one lot of carrier-current apparatus for Wellton Mohawk Pumping Plants 1, 2 and 3 and Gila substation, Davis Dam and Gila Projs., Spec. 2820, to Control Corp., 718 Central Ave., Minneapolis, Minn., **$50,000.** Bids 12/13, awarded 1/18. CD 11/2.

▲ **Pennsylvania**—Dpt. Forests & Waters, 404 Education Bldg., Harrisburg, dredging, floodway clearing and excavation in River Sect III of the Schuylkill River desilting proj., Berks and Chester Counties, to Eastern Eng. Co., 4 N. North Carolina Ave., Atlantic City, N. J., **$2083,467.** Bids 1/17. CD 1/20, under LB.

### AIRPORTS

**BIDS ASKED**

† **Miss., Hawkins Field (P. O. Jackson)—B.A.** On or about 3/2—U. S. Eng., 2301 Grant St., Mobile, Ala., bldg. alterations, for O.R.C. use at Hawkins Field, CIVENG-01-076-50-39.

**LOW BIDDERS**

† **Wash., Walla Walla**—OFFICE, etc.—U. S. Eng., 19 E. Poplar St., rejected bids Jan. 24, conversion of bldg. 710 at Walla Walla Air Base into offices, locker storage area and recreation area, CIVENG-45-164-50-76, LB **$39,961.** Est. $23,877. CD 1/6.

**CONTRACTS AWARDED**

**Man., Rivers**—AIRPORT——Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., waterline and water supply structures at Joint Air School Development (C.J.A.T.C.) to Commonwealth Constr. Co. Ltd., 300 Royal Bank Bldg., Winnipeg, Man., Approx. **$98,233.**

### PUBLIC BUILDINGS

**BIDS ASKED**

**Pa., Hollidaysburg**—BARRACKS—B.A. 2/15—General State Auth., 18 and Herr Sts., Harrisburg, general contract, heating, plumbing and electrical work for barracks and examining field for the Pennsylvania State Police. $316,425. Plans deposit $10. general, $2.50 each others. Buchart Eng. Corp., 611 W. Market St., York, engrs. and archts. CD 9/29.

† **Va., Portsmouth**—CONNECTING STRUCTURE—B.A. 2/15—Pub. Wks. Office, Fifth Naval Dist., U. S.

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### PROJECTS COVERED

#### *Projects—By Size*

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

#### *Classes of Construction*

(Name in order of Listing)

- Water Supply
- Sewers, Waste Disposal
- Bridges
- Streets & Roads
- Earthwork, Waterways
- Latin America
- Public Buildings
- Commercial Buildings
- Industrial Buildings
- Unclassified

#### *Stages Reported*

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

#### *Symbols and Abbreviations Include:*

| | |
|---|---|
| † | Federal Government |
| ▲ | Project of $1,000,000 or over. |
| B.A. | Bids Asked |
| ENR | Engineering News-Record |
| CD | Engineering News-Record Construction Daily |

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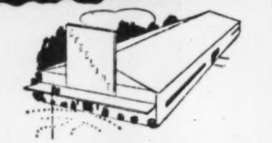

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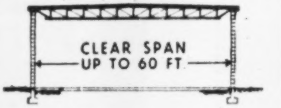

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Naval Base, Norfolk, Zone 11, connecting structure between Buildings 58 and 59 at U. S. Naval Hospital, Spec. No. 23207. Plans deposit $10.

▲ **Md., College Park**—CHEMISTRY CLASSROOM—B.A. 2/16—University of Maryland, Dpt. P. Imprvts., 506 Park Ave., Baltimore, 5 story, structural frame, rein.-con., brick, cinder block chemistry classroom, teaching and research laboratory bldg., air-conditioning. $1,600,000. Plans deposit $50. Hall, Border & Donaldson, 2111 N. Charles St., Baltimore, archts., John D. Funk, 506 Park Ave., ch. engr. CD 11/2.

**Mass., Somerville**—HOUSING—B.A. 2/16—City of Somerville Housing Auth., Charles G. Martignette, chn., 139 Alewife Brook Parkway, West Somerville, at Aldermatic Chamber, City Hall, Highland Ave., housing, Mystic Ave. and Temple St., State Sided Prop. Somerville 200-2. Plans deposit $100. CD 12/14/45.

**N. C., Raleigh**—AGRONOMY BLDG., HEAD HOUSE—B. A. 2/16—North Carolina State College, J. G. Vann, Asst. Controller, Raleigh, 1,080,000 cu. ft. agronomy bldg., 63,500 cu. ft. head house for Greenhouse. Plans deposit $25 agronomy bldg. $10 head house. Northrup & O'Brien, 602 Reynolds Bldg., Winston-Salem, archts. CD 10/28/48.

† **Pa., Wilkes-Barre**—HOSPITAL TOPSOILING, etc.—B.A. 2/16—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., topsoiling, seeding, sodding, Veterans Admin. Hospital, Serial No. CIVENG-18-020-50-21. CD 1/19.

**Tex., Carrizo Springs**—SCHOOL—B.A. 2/16—Carrizo Springs Independent School Dist., Carrizo Springs, 20 room school. $250,000. Plans deposit $15. Phelps & DeWees & Simmons, 1501-6 Majestic Bldg., San Antonio, archts. CD 6/20.

† **New York**—OPERATORS RESIDENCE—B.A. About 2/17—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., operators residence, shop bldg. and garage, at Whitney Point Dam on Otselic River, approx. ¾ mi. from Whitney Point, Broome Co., State Hy. Route 26. CIVENG-18-020-50-20.

**La., Shreveport**—HOUSING—B. A. 2/17—Shreveport Housing Auth., W. C. Mason, secy., City Hall, nineteen 184 unit, houses, 1 admin. bldg., local auth. job office, Wilkinson Terrace Housing Proj. La-22. Plans deposit $50 each, Neild & Somdal, Eastern Texas Bldg., Shreveport, archts.

**Minn., Richfield (Minneapolis P. O.)**—SCHOOL—B.A. 2/17—Bd. Educ., E. C. Ellenson, clk., 1 story, 18 classroom school, 75 St. and Penn Ave. S. $475,000. Plans deposit $10. Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 11/28.

† **New York** — OPERATORS RESIDENCES, etc. — B.A. 2/17—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., operator's residence, garage, shop bldg., Whitney Point Dam, Broome Co., Serial No. CIVENG-18-029-50-29. CD 1/17.

† **Ohio**—STORAGE—B.A. 2/17—U. S. Property & Disbursing Office for Ohio, Bldg. 101, Fort Hayes, Columbus, Zone 18, five 52x92 ft. vehicle storage bldgs. at Mt. Vernon, Urbana, Paulding, Greenville and Hillsboro; two 52x128 ft. vehicle storage bldgs. at Youngstown and Willoughby, concerte block walls, concrete floor, etc.

**O., Bowling Green**—HEATING PLANT—B.A. 2/17—State Dpt. P. Wks., State Office Bldg., Columbus, Central Heating Plant addn. at north end. $300,000. H. G. Allen, c/o owner, archt. John Paul Jones Cary & Miller, Inc., Terminal Tower, Cleveland, engr.

**Tenn., Jonesboro**—HIGH SCHOOL—B.A. 2/17—Washington Co., Jonesboro, high school. Plans deposit $50. Leland K. Cardwell, Johnson City, archt.

**B. C., Castlegar**—JUNIOR SENIOR HIGH SCHOOL—B.A. 2/17—C. H. King, secy. School Dist. 9, Castlegar, frame Junior-Senior High School. Approx. $420,000. Plans deposit $50. Sharp & Thompson, Berwick, Pratt, 1553 Robson St., Vancouver, archts. CD 1/20.

**Ia., Orange City**—POWER PLANT—B.A. 2/20—City, City Hall, power plant addn., generating equipment, switchboard, piping, etc. $70,000.

**Kan., Wichita** — SCHOOL — B.A. 2/20 — Bd. Educ., Admin. Bldg., 428 S. Broadway, Zone 2, Wm. Mathewson Intermediate School, 17 and Volutsia Sts. $275,000. Overend & Boucher, Brown Bldg., archts. CD 11/23/49.

▲ **N. J., Atlantic City**—HOUSING—B.A. 2/20—Atlantic City Housing Auth., 2311 Fairmount Ave., 164 unit housing, Stanley Holmes Village. $1,500,000. H. A. Stout & Son, Guarantee Trust Bldg., archts. CD 8/19.

† **N. M., Albuquerque**—SCHOOL—B.A. About 2/21—U. S. Eng., P. O. Box 1538, school exten., Sandia Base, ECP-50-6, Serial No. Eng-29-005-50-32.

**Calif., Berkeley** — SCHOOL — B.A. 2/21 — State Dir. Architecture, Pub. Wks. Bldg., Sacramento, 1 story, 1,218 sq. ft. frame Unit 1, 3 story, 54,140 sq. ft. rein.-con. Units 2 and 3 California School for the Deaf. Plans deposit $25. Anson Boyd, c/o owner, state archt. CD 8/30/45.

**Calif., Los Angeles**—OFFICE—B.A. 2/21—State Div. Architecture, Pub. Wks. Bldg., Sacramento, highway office addns. Anson Boyd, c/o owner, state archt.

**N. S., Halifax**—LABORATORY, etc.—B.A. 2/21—Hon M. D. Rawding, minister, c/o Dpt. Hys. & P. Wks., Halifax, 3 story bsmnt, 65x147 ft., rein.-con. laboratory and classroom bldg. at Nova Scotia Technical College, Spring Garden Rd. Approx. $550,000. C. St. J. Wilson, Roy Bldg., archt. CD 4/10/47.

### LOW BIDDERS

**Calif., Salinas**—WARD—Monterey Co., Courthouse, Jan. 23, 1 story, rein.-con. isolation ward bldg., near here, from Lembke Constr. Co., 16 St. and Christian Blvd., Las Vegas, Nev., $333,300. CD 12/21.

**Calif., San Fernando**—HOSPITAL IMPRVS.—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., Jan. 24, boiler in Bldg. 45, V. A. Hospital, from J. A. Carter Co., 2521 W. 9 St., Los Angeles, $78,563.

▲ **Fla., Miami**—HOSPITAL—Dade Co., Miami, 7 story Jackson Memorial Hospital addn., from Fred Howland, Inc., 1451 N.W. 20 St. $2,697,252. CD 12/28.

▲ **Miss., Greenwood**—HOSPITAL—City and Leflore Co., Jan. 24, hospital, from J. P. Ewin, Inc., P. O. Box 361, Mobile, Ala., $1,382,000. CD 12/28/49.

† **Mo., Jefferson Barracks**—HOSPITAL ALTERATIONS—Veterans Admin., Vermont Ave., between H and I Sts. N. W., Wash. 25, D. C., Jan. 24, altering Bldgs. 1, 4 and 23, addnl. laboratory facilities, etc., Spec. 4973 from LeCoutour Constr Co., 4903 Delmar St., St. Louis, $104,974. CD 12/16/49.

**N. Y., Thiells**—BAKERY, etc.—Bureau Contracts & Accounts, Albany, Jan. 25, bakery and storehouse addn. at Letchworth Village from Joseph A. Lee Constr. Co., Inc., 3103 Farragut Rd., Brooklyn, Zone 10, $293,811. CD 1/19.

## COMMERCIAL BUILDINGS

### BIDS ASKED

**N. Y., New York**—OLD AGE HOME—B.A. 2/15—Workmans Circle Old Age Home for New York Branches, Inc., 175 Broadway, old age home Burke Ave. $850,000. Extended date. George W. Swiller, 535 E. Tremont Ave., archt. CD 5/18.

▲ **N. Y., New York**—HOSPITAL—B.A. 3/15—Mt. Sinai Hospital, 5 Ave. and 100 St., hospital and laboratory. $7,000,000. Kahn & Jacobs, 2 Park Ave., archts. York & Sawyer, 101 Park Ave., consult. archts. Fred M. Severud, 415 Lexington Ave., engr. CD 11/14.

### SOON LETS CONTRACT

▲ **Ill., Chicago**—STORE—Goldblatt Bros., Inc., 333 S. State St., soon lets contract 1 story, bsmnt., brick, steel, concrete, department store, Madison and Pulaski Sts. $1,400,000. Friedman, Alschuler & Sincere, 223 W. Jackson St., archts. CD 11/7.

**O., Cincinnati**—HOSPITAL—Jewish Hospital, Dr. Ross, supt., Burnett Ave., soon lets contract, hospital alterations: H. N. Herman & Assoc., 701 Enquirer Bldg., engrs. and archts. CD 8/3/45.

▲ **O., Cleveland**—HIGH SCHOOL—Sisters of St. Dominic St. Joseph's Academy, Adrian, Mich., soon lets contract Hoban High School, Harvard and E. 183 Sts. $1,250,000. Barry & Kay, 53 W. Jackson Blvd., Chicago, Ill. archts.

### CONTRACTS AWARDED

▲ **Ala., Mobile**—HOSPITAL—Providence Hospital, Inc., c/o contractor, hospital, to J. P. Ewin, Inc., P. O. Box 361, $2,452,998. CD 1/24.

▲ **Conn., East Hartford** — HOUSING — Garfield Park Homes, Inc., M. Shapiro & Sons Co., 254 W. 54 St., New York, N. Y., 120 single house, on 39 acre site, owner builds, $1,200,000. CD 1/26.

**Fla., St. Petersburg**—HOUSES—Owens Constr. Co., 16 St. and 38 Ave., 49 houses. Owner builds, $500,000.

**Mass., Springfield**—HOUSING—A. R. Phillips, Napier St., brick, steel, housing, Federal and Pearl Sts., to Ernest Carlson, Inc., 1694 Main St., Approx. $350,000. CD 1/27

**Mo., St. Louis**—SCHOOL—Markus Evangelical Lutheran Church, c/o Froese, Maack & Becker, archts., 705 Olive St., Zone 1, 1 story, bsmnt., 59x109 ft., brick, concrete parochial school, 22 and Angelica Sts., to Woermann Constr. Co., 3800 W. Pine St., Zone 8. Bids 12/220. CD 12/19.

**N. C., Brevard**—HOUSING—Harry L. Liner, Waynesville, 50 housing units. Owner builds $500,000.

▲ **O., Cincinnati**—RESIDENCES—Lang Bros., 5240 Lester Rd., fifty 1½ story, bsmnt., brick residences, new street off N. Bend Rd., Faircrest sub-division, College Hill, $750,000; 26 one story, bsmnt., 30x75 ft. brick residences, Skyline Dr., Kennedy Heights Sect., $312,000, separate contracts. CD 8/30.

**O., Cleveland**—HOMES—Frank Kares, 17304 Broadway, 39 one story, bsmnt., frame homes, JoAnn Dr., separate contracts. $350,000.

▲ **O., Westlake** — HOMES — Bauer & Barnow, 9746 Lorain Ave., Cleveland, 127 one story bsmnt., frame homes, Westwood Dr., Smith and Redgewood Rds., separate contracts. $1,300,000.

**R. I., Pawtucket**—HOUSING—Alphanage Ferland & Sons, 700 Benefit St., 33 one story, bsmnt., 25x35 ft. frame homes, Cottage St. Owner builds. $330,000.

**Va., South Boston**—HOMES—The Edmunds Realty Co., South Boston, 42 homes. Owner builds. $252,000.

## INDUSTRIAL BUILDINGS

### BIDS ASKED

**Calif., San Francisco**—PLANT—Abbett Electric Corp., 172 Tehama St., soon lets contract 2 story type 3, 57x105 ft. plant. Approx. $70,000. Ellison & King, 1045 Sansome St., engrs.

**Ont., London**—FACTORY—B.A. About 3/1—Kellogg Co. of Canada, H.O. Battle Creek, Mich., U.S.A., 85x150 ft., brick, steel, glass factory. $150,000. Giffels & Vallet, 210 Canada Trust Bldg., Windsor, archts. CD 5/1/47.

**O., Cincinnati**—FACTORY, etc.—Bids Asked—Quehl Sign Co., 316 Main St., 2 story, 76x125 ft., brick, concrete, structural steel cinder block backup factory, incl. offices, garage, driveway paving. Carl Freund & Gartner, 462 E. 5 St., archts.

**CONTRACTS AWARDED**

**Calif., San Leandro**—CANNERY—Workman Packing Co., 432 7th St., San Francisco, 30,000 sq. ft., steel, concrete cannery, to W. K. Owen, 1397 55 St., Emeryville. Approx. **$200,000.**

**Fla., Miami**—PLANT—Eastern Air Lines, Inc., c/o contractor, oil reclaiming and refining plant, to Gust K. Newberg Constr. Co., 99 N.E. 71 St. Approx. **$75,000.**

**Ill., Chicago**—PLANT—Chas. Bolger, 7601 S. Western St., Zone 20, milk processing plant, to Federici Constr. Co., 6451 S. Albany St., Zone 29. **$70,000.** Awarded 1/20. Elmer C. Carlsen, 2141 W. 95 St., Zone 42, archt.

**Mo., St. Louis**—MANUFACTURING, etc.—Universal Mfg. Co., 6629 Olive St. Rd., Zone 5, 1 story, 72x144 ft. and 73x76 ft., concrete block, mfg. and storage bldg. addn., 1438 Pierce Ave., to Bumiller & Meyersieck, 2604 Cherokee St., Zone 18.

**Wash., Seattle**—WAREHOUSE—Perry Bros. 2221 Western Ave., produce warehouse, day labor. **$75,000.** W. B. Aitken, 408 Marion St., archt. CD 10/31/49.

**Ont., Toronto**—BUILDING ALTERATIONS—Lever Bros., Ltd., 299 Eastern Ave., Bldg. 11 alterations. Eastern Ave., to Anglin-Norcross, Ontario, Ltd., 57 Bloor St. W. Approx. **$100,000.** Bids 1/10. CD 12/19.

## UNCLASSIFIED

**BIDS ASKED**

**B. C., Gambier Island (Camp Georgia)**—WHARF—B.A. 2/15—Acting Secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf. Approx. **$50,000.** Plans deposit $20. R. Blais, c/o owner, engr.

**N. S., New Harbour**—B.A. 2/15—WHARF—Acting Secy., c/o Dept. P. Wks., Hunter Bldg., Ottawa, Ont., wharf replacement. Approx. **$42,000.** Plans deposit $20. R. Blais, c/o owner, engr. CD 4/8/46.

† **La., Belle Chasse**—GENERATOR HOUSE—B.A. 2/16—Officer in Charge of Constr., Bldg. 16 Naval Station, New Orleans, generator house and transformer vault, 16x16 ft., 9½ ft. high, incl. earthwork, creosoted wood piles, rein.-con. concrete unit work, metal doors, installation motor generator set. Plans deposit $10.

**La., Winnfield**—SWIMMING POOL—B.A. 2/17—Town, c/o Mayor, 50x100 ft. swimming pool, and wading pool, incl. filter equipment. CD 4/21/49.

**Calif., Colusa**—GRANDSTAND—B.A. 2/21—State Div. Architecture, Pub. Wks. Bldg., Sacramento, 1,400 seat capacity grandstand for 44th Dist. Agricultural Assn. Plans deposit $25. Anson Boyd, c/o owner, state archt.

**California** — HIGHWAY LIGHTING — B.A. 2/23—State Div. Hys., Pub. Wks. Bldg., Sacramento, highway lighting at 7 intersections and at interchange areas between Mariposa Rd. and Calaveras River and at D St. G. T. McCoy, c/o owner, state hy. engr.

**LOW BIDDERS**

**Tex., Bryan**—ELECTRIC DISTRIBUTION SYSTEM—City, c/o Noah W. Dansby, secy., Bryan, Jan. 20, West Side electric distr. sys. imprcs., from C. C. Teague & Con Constr. Co., P. O. Box 480, Sherman, **$50,781.** Est. $50,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs.

**CONTRACTS AWARDED**

**Miss., Picayune**—MOTOR COURT—H. C. Hill, Picayune, motor court. Owner builds. **$50,000.**

## PROPOSED PROJECTS

## WATER SUPPLY

**Mass., Andover**—Town, Bd. P. Wks., water main exten., Main St. to Bancroft Rd., Approx. **$50,000;** 6 m.g. reservoir. Approx. **$90,000.** W. O. Peterson, Town Hall, town engr. CD 3/7/46.

▲ **Minn., Richfield (P. O. Minneapolis)**—Village, J. R. Stewart, clk., WW. sys. **$4,000,000.** MacGregor & Davis, 1108 Nicollet Ave., Minneapolis, and 517 Commerce Bldg., St. Paul, consult. engrs.

▲ **Minn., St. Louis Park**—Village, J. Justad, clk., water facilities, incl. 1 m.g. water treatment plant, 108,500 lin. ft. water main extens., well, pump house, 1 m.g. overhead tank, 2 m.g. concrete reservoir. **$3,445,000.** G. M. Orr Eng. Co., 1004 Marquette Ave., Minneapolis, consult. engr.

▲ **N. Y., New York**—Bd. Water Supply, 120 Wall St., plans Stage 3, New York City Water Supply, incl. Cannonsville Dam, on West Branch, Delaware River and 44 mi. tunnel to Rondout Reservoir. Project approved by Board of Estimate. **$140,000,000.** CD 7/19/46.

**O., Elyria**—Amherst Water Works Co., Amherst, waterlines and feeder mains between Elyria and Amherst. **$100,000.** Ed. Barstow, 31 N. Summit St., Akron, consult. engr.

**Okla., Britton**—City, defeated bonds. WW extens., **$109,500.** Kenneth Kloffke, 2098 Classen St., Oklahoma City, consult, engr. CD 12/15.

**Ore., Seaside**—City, City Hall, voted bonds, replacing 4,200 ft. 24 in watermain from Beerman Creek to new 24 in. line south of city. **$100,000.** Radford R. Shawcross, city engr.

**Que., St. Basile Le Grand**—Municipality, A. Marchand, secy., artesian well and WW. sys. imprvs. Approx. **$115,000.** M. Morrissette, 15 Longval St., Cape de La Madeleine, engr.

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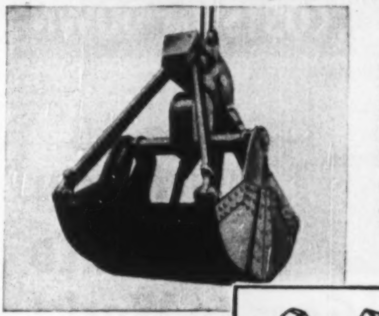

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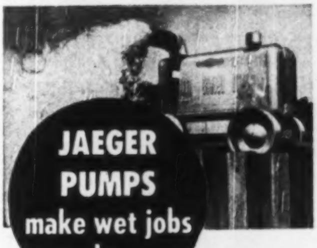

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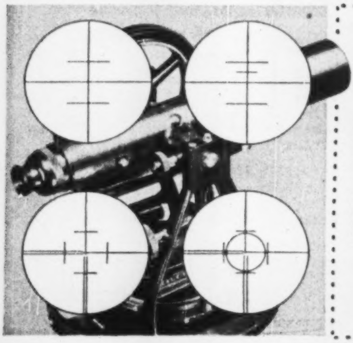

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## SEWERS, WASTE DISPOSAL

**Calif., Goleta**—Goleta Sanitary Dist., Goldeta, **plans** $225,000 **bond election, sewage disposal plant, on** Mescalitan Island. **$315,000.** CD 12/20/47

▲ **Minn., St. Louis Park**—Village, J. Justad, **clk. sanitary sewer extens., $3,000,000.** G. M. Orr Eng. Co., 1004 Marquette Ave., Minneapolis, consult. engr. CD 5/24/49.

**N. H., Hampton**—Town, Special Sewer Bldg. Comn., Town Hall, **sewerage treatment plant imprvs.,** approx. 5 mi. 8 and 10 in. **clay sewers. Approx. $200,000.** Haley & Ward, 1119 Tremont St., Boston, Mass., engrs. CD 6/16/47.

**N. Y., Blasdell**—Village, Village Hall, **sewerage treatment plant, pump. station and trunk sewer. $425,000.** CD 2/5/45.

**N. Y., Yonkers**—City, City Hall, **sanitary trunk sewer** in area adjacent to Grassy Sprain **Reservoir. $115,000.** CD 12/15/44.

**O., Berea**—City, City Hall, **sewage treatment plant. $300,000.** R. F. MacDowell, 401 Chester-12th Bldg., Cleveland, consult. engr.

**Okla., Britton**—City, defeated bonds, sanitary sewer extens. **$162,000.** Kenneth Kloffe, 2908 Classen St., Oklahoma City, consult. engr. CD 12/15.

**Okla., Madill**—C. A. Hardee, Jr., mayor, Madill, sewage treatment plant Okla-34-1007), $130,460. Ralph W. Delaney, P. O. Box 411, **Ada, consult. engr.**

**Tex., Tom Ball**—Acres Home, Tom Ball, **storm sewers, $65,000; sanitary sewers, $75,000,** in Tom Ball Rd. between N. Sheppherd and Little York Rds.

**Ont., Windsor**—Municipality, sewers, **$200,000.** R. J. Desmaraist, City Hall, city engr.

## BRIDGES

**O., Youngstown**—Mahoning Co., Courthouse, Youngstown, and State Hy. Dpt., **Columbus, repair Market** St. Bridge, incl. floor, **railings for 1,560 ft.; stringers** for roadway and **sidewalks,** 3½ in. steel grid floor with 1½ in. asph. **wearing surf. $500,000.** Samuel Gould, Jr., Mahoning Co. engr. CD 3/14/45.

▲ **Tex., Dallas**—Dallas Co., Lew Sterrett, judge, Courthouse, **voted bonds, steel, concrete forest Ave.** Bridge, and Bonnieview road connections, **$1,722,000;** addnl. wooden, steel, concrete type bridges. approaches throughout county, **$1,343,250;** Wildwood Dr. Steel, **concrete bridge, approaches,** Elm Fork **Creek, $100,000;** Royal Lane steel, concrete bridge, approaches, **$75,000;** California Road Bridge, approaches over Elm Fork, **$75,000;** Denton Rd. concrete, steel bridge, and approaches over Elm Fork, **$75,000;** concrete, steel vehicle bridge on Industrial Blvd. **$50,000;** Simonds Rd. Bridge, approaches in levee district in S. E. Dallas County, **$50,000;** Beckley Ave—approach to Continental viaduct (Lamar-McKinney Bridge), **$100,000.** H. Klinger, c/o owner, engr. CD 10/28.

**Tex., Mercedes**—B & P Bridge Co., c/o Al M. Cain, pres., Mercedes, **steel, concrete toll bridge across** Rio Grande River. **$250,000.** A. Tamm, Harlingen, consult. engr.

**Tex., Silsbee**—Hardin Co. Road Dist. 5, Silsbee, **voted bonds,** bridge across Village **Creek, paving streets,** roads. **$175,000.** Frank P. Payne, Courthouse, Kountze, co. engr. **CD 1/9.**

## STREETS AND ROADS

**Ala., Homewood**—City, resurf. 65 streets, **$450,000.** Polk, Powell & Hendon, Chamber of Commerce Bldg., Birmingham, consult, engrs.

**La., Welsh**—Town, **voted $110,000 bonds, street paving.** CD 1/3.

**La., Winnsboro**—Franklin Parish Police Jury, C. L. Moore, secy., **$225,000** bond election Feb. 14, streets and roads in Rd. Dist. 10-A.

**O., Lakewood**—City of Lakewood and State Dpt. Hys., Columbus, wid'n., paving Clifton Blvd. through city of Lakewood, **$950,000.** L. L. Drasler, c/o State Hy. Dpt., Columbus, state hy. engr.

† **Texas**—Bureau Pub. Roads, Dpt. Commerce, 254 New Courthouse, Denver, Colo.,

**Brewster Co.**—addnl. new road construction inside National Park enclosure proper, **Alpine** (south), **$216,200.**

Completing North Entrance roads to the Park, Alpine (south), **$250,000.**

▲ **Texas**—Texas Turnpike Co., c/o V. D. Bostick & Assoc., Magnolia Bldg., Dallas,

**Dallas & Ellis, Navarro, Freestone, Leon, Madison, Grimes, Walker, Montgomery, Harris Counties**—218 mi. 4-lane turnpike between Dallas and Houston. $84,000,000. J. E. Greiner Co., 3712 Milam St., Houston, consult. engr. CD 1/18.

**Tex., Crystal City**—Zavala Co., Courthouse, $300,000 bond election Feb. 18, road imprvs., 10 mi. Calpak to 5 mi. south of Batesville, 6 mi. Batesville to Frio Co. line 6 mi. from county line to Moore; wid'n. 22 mi. Hy. Crystal city toward LaPryor. **$450,000.**

▲ **Tex., Dallas**—Dallas Co., Lew Sterrett, judge, Courthouse, **voted bonds, grading, drainage, surf., at** various sects. of county not already designated, **$1,000,000;** West Dallas drainage and street imprvs., **$151,050;** North Beckley Ave. imprv. and asph. paving, **$75,000;** Sylvan-Maple Ave. imprvs. and paving, **$918,000;** Meyers Road imprvs., **$206,000;** Grauwyler Rd. Elm Fork Rds. **$203,000;** Brittian Rd. constr., Irving to Hy. 183, **$55,000 paving and imprv.** portions Jefferson Blvd., **$318,000 Westmoreland Rd.** imprvs. **and connecting concrete Trinity River bridges,**

$132,000 Bonnie View Rd. extens. to Lancaster city line, $75,000; drainage on Industrial Blvd., $85,000; Mallory—Bridge road imprvs., $431,000; new road constr. and asph. paving, Forest Hy. to Hy. 246, $192,000; Centerville—Ferguson road imprvs., $363,500; 8 St. asph. surf. $65,000; Lake June Rd. imprvs. $340,000; Military Dr. road imprvs. $1,135,250; Lancaster to Hutchins road imprv. $260,000; road imprvs., Denton Tap Rd. $120,000; Riverview Rd. imprvs. $425,000; Estell — Euless road imprvs $100,000; Hampton — Inwood road imprvs. to Rd. $477,000; road imprvs., Valley View Lane Rd. $199,000; 90 mi. long 24 ft. wide asph. Belt Line Rd., encircling the county, $3,392,000; road imprvs. for Old Greenville-Interurban-Skillman, Garland to Dallas; Mockingbird Lane to Garland, $1,369,750; imprv. surf. Webb's Chapel Rd—Lemmon Ave. to Belt Line, $102,000; imprv. surf. Gross Rd—Mesquite to new U. S. Hy. No. 67, $50,000; imprv., surf., drainage Preston Rd. (State Hy. 289) from N. W. Hy. to city limits, $85,000; asph. paving, drainage Illinois Ave—Lancaster Rd. to Zangs Ave. $413,000; paving Lancaster Rd., Illinois to city limits, $395,000; asph. 2nd Ave. Hatcher to city limits, $135,000 H. Klinger, c/o owner, engr. CD 10/28.

**Tex., Nederland**—Jefferson Co., Courthouse, Beaumont, c. conc. paving and wid'n. 1 mi. stretch Beaumont-Port Arthur Old Rd. through Nederland, 56 ft. wide, curbs and gutters. Precinct 2. $225,000. Charles L. Davidson, co. engr.

**Tex., Silsbee**—Hardin Co. Road Dist. 5, Silsbee, voted bonds, hard-surfaced roads through district. $435,000. CD 1/9.

**Tex., South Houston**—Town, 11 mi. asph. and grav. paved streets. $300,000. Freese, Nichols & Turner, 211 National Standard Bldg., Houston, consult. engrs.

† **Washington**—Bureau Public Rds., Dpt. Commerce Morgan Bldg., Portland, Ore.

**Snohomish Co.**—surf. 7.6 mi. Mountain Loop Hy. between Red Bridge and Big Four. $215,000. W. H. Lynch, div. engr.

## EARTHWORK, WATERWAYS

**Pennsylvania**—General State Auth., 18 and Herr Sts., Harrisburg, flood control area at Pymatuning Lake, Crawford Co. $100,000. A. F. Jones, c/o owner, ch. engr.

**Tex., Bay City**—Matagorda Co., c/o Comrs. of Court, Bay City, dredging Colorado River starting 9 mi. from Bay City and run to the city. $800,000.

▲ **Tex., Liberty**—Chambers-Liberty Counties Navigation Dist., Grover Chambliss, chn., Liberty, Lake Liberty Water Storage Reservoir. $4,000,000.

## AIRPORTS

**O., Cleveland**—TUNNEL—National Advisory Committee of Aeronautics, Lewis Flight Propulsion Laboratory, Cleveland Airport, sound proof tunnel of concrete, steel reinforcing sound baffle of large glassware sheets. $260,000. Dr. Richard H. Bolt, Chief M.I.T. Acoustical Laboratory, Massachusetts Institute of Technology, Cambridge, Mass., engr.

**Tex., Beaumont** — WAREHOUSE,etc. — Texas National Guard, c/o State Adjutant Gen. K. L. Berry, Austin, warehouse and radar aircraft control center at Jefferson County Airport. $600,000.

▲ **Tex., Houston**—ADMINISTRATION BLDG.—City, plans by Wyatt C. Hedrick, 5201 Fannin St., 80,000 sq. ft., steel frame, masonry Municipal Airport Administration Bldg., rein.-con. pier and beam fdn. $1,145,000. CD 5/2.

## LATIN AMERICA

▲ **B. W. I., Jamaica**—Reynolds Jamaica Mines, Ltd., c/o Reynolds Metals Co., 2537 S. Third St., Louisville 1, Ky., U. S. A., plans development bauxite deposits, incl. pier and harbor facilities, drying plant, 6 mi. overhead tramway and mining facilities. $11,000,000.

**Mexico, Mexicali**—Packard Bell de Mexico, S. A., Madero, 995 Mexicali, B. C., Mexico, plans radio receivers factory. $500,000.

**Mexico, Mexico City**—Backwith y Cia., S. de R. L., Serapio Rendon, 39, Mexico, D.F., Mexico, plans radio receivers factory. $500,000.

**Mexico, Mexico City**—Corporacion Mercantil de Mexico, S.A., Ejido, 7, Mexico, D.F., Mexico, plans radio receivers factory. $500,000.

**Mexico, Mexico City**—Mexican Govt., D. de. P., Plaza, de la Republica, 6, Mexico, D.F., plans 2,200 family multi-family bldg. $4,000,000.

**Mexico, Tuxtla Gutirrez**—Gumersindo Arenas Hernandez, Direccion Concoido, Tuxtla Gutierrez, Chiapas, plans 12,000 lb. daily coffee treatment plant. $600,000.

**Venezuela, Felix**—Republic of Venezuela, Caracas, plans hydro electric development of the falls on the Caroni River, construct three hydro-electric plants with capacity of 50,000 kw. each. Approx. $26,000,000. Works Ministry, Caracas, engr.

## PUBLIC BUILDINGS

**Ala., Auburn**—FACULTY HOUSE—Alabama Polytechnic Institute, Auburn, alumni faculty house. $390,000. CD 5/17/44.

**Ala., Cordova**—HOUSING—Cordova Housing Auth., Cordova, 60 housing units. Approx. $250,000.

**Ala., Haleyville**—HOUSING—Haleyville Housing Auth., Haleyville, 40 housing units. Aprox. $250,000.

**Ala., Hamilton**—HOUSING—Hamilton Housing Auth., Hamilton, 40 housing units. $300,000.

**Ala., Mobile**—HOUSING—Mobile Housing Auth., 1555 Eagle Dr., 700 housing units. Approx. $250,000.

**Ala., Sylacauga**—HOUSING—Sylacauga Housing Auth., Sylacauga, 50 housing units. $250,000.

**Ark., Arkadelphia**—HOUSING—Arkadelphia Housing Auth., Arkadelphia, 75 housing units. Approx. $350,000.

▲ **Calif., Carmel**—SCHOOLS—Carmel Unified School Dist., Carmel, $1,000,000 bond election Feb. 28, Carmel River School, $250,948; New Carmel Woods School addn., $170,602; Carmel High School addn., $490,000; 1,000 seating capacity auditorium Carmel High School, $300,000, CD 12/23/49.

**Conn., Falls Village**—HIGH SCHOOL—Housatonic Regional School, School Bd., Town Hall, plans by Ernest Sibley, 7 S. Main St., West Hartford, brick, steel high school addn. $250,000.

**Conn., Glastonbury**—SCHOOL—Town, Bd. Educ., Glastonbury, plans by Carl J. Malmfeldt Assoc., 36 pearl St., Hartford, 2 story, bsmnt., 14 room brick, steel school. $375,000. CD 12/23.

† **Conn., New London**—CHAPEL—U. S. Navy, Coast Guard Dpt., Coast Guard Academy, New London, plans by Douglas Orr, 96 Grove St., New Haven, 1 story bsmnt., brick, stone chapel Coast Guard Academy, $500,000. CD 2/16.

**Del., Bellefonte**—SCHOOL—Bd. Educ., Mt. Pleasant Special School Dist., Bellefonte, plans by Pope & Kruse and Stanhope & Manning, Equitable Bldg., 9 and Market Sts., Wilmington, 20 room school. $550,000.

**Del., Camden**—SCHOOL—Caesar Rodney Special School Dist., Camden and State Bd. Educ., Dover, plans by Manning & Stanhope, Equitable Trust Bldg., Wilmington, Caesar Rodney School addn., alterations, $495,000. CD 1/9.

**Ga., Atlanta**—HIGH SCHOOL—Fulton Co. Bd. Educ., Courthouse, plans by Cooper, Bond & Cooper, Henry Grady Bldg., Atlanta, Lakewood Heights High School. Approx. $300,000.

**Ga., Cedartown**—COURTHOUSE, etc.—Polk Co., plans by William J. J. Chase & Assoc., 140 Peachtree St., Atlanta, joint courthouse, jail and office. $250,000. CD 11/22.

▲ **Ill., Pekin**—HOSPITAL DEVELOPMENT—Pekin Hospital Bd. Trustees, B. F. Hoffman, pres., Pekin, Pekin Public Hospital development. $1,500,000.

▲ **Ia., Cedar Falls**—HIGH SCHOOL—Bd. Educ., plans by Tinsley, Higgins & Lighter, 526 Liberty Blvd., Des Moines, high school. $1,000,000.

**Ia., Iowa City**—SCHOOL, etc.—State Bd. Educ., 1007 Des Moines St., Des Moines, plans by Ralph Arnold, state archt., school-dormitory for handicapped children, $300,000.

▲ **Ia., Ottumwa**—SCHOOLS—Ind. School Dist. $1,600,000 bond election Mar. 13 South Side Junior High School, 2 grade schools. Keffer & Jones, Masonic Temple, Des Moines, archts. CD 2/1/46.

▲ **Kan., Manhattan**—SCHOOLS—Bd. Educ., $2,000,000 bond election Apr. 4, Roosevelt School addn., high school, elementary school, elementary school addn. F. O. Wolfenbarger, Manhattan, archt. CD 12/28.

**Kan., Park**—SCHOOL—Bd. Educ., Park, plans by W. I. Fisher, Central Bldg., Wichita, high school, $260,000.

**Ky., Corbin**—HOSPITAL—City, J. H. Meredith, Mayor, City Hall, plans by Howard McClorey, 519 Main St., Cincinnati, O., 3 story, bsmnt., structural steel, rein.-con. hospital, $625,000.

† **Ky., Louisville**—TRAINING CENTER—U. S. Eng., 830 W. Broadway, Louisville, Zone 1, 2 story, bsmnt., cinder block, brick, stucco Training Center for Organized Reserves. $360,000.

**Ky., Nicholasville**—COURT HOUSE—Bd. Educ., Jessamine Co., plans by Brock & Johnson, 144 Barr St., Lexington, 96x102 ft. court house addn. $250,000.

**La., Lafayette**—WAR MEMORIAL—Lafayette Parish, plans by A. Hayes Town, Masonic Bldg., Baton Rouge, war memorial bldg. $375,000.

**Md., Baltimore**—HOSPITAL BLDGS.—Mayor & City Council, City Hall, plans by Lucius R. White, Jr., 10 W. Chase St., reconstr. 3 story bldg. to be increased to 5 story, 45x674 ft., brick, concrete, steel infirmary, City Hospital, Eastern Ave., $3,500,000; plans by Palmer, Fisher, Williams & Nes, 1020 St. Paul St., 4 story, H-shaped, 47x242 ft., 80x130 ft., and 47x242 ft., concrete, steel, concrete block tuberculosis hospital, City Hospital, Eastern Ave., $2,500,000, Van Rennselaer Saxe, 100 W. Monument St., structural engr. Egli & Gompf, Inc., 1014 N. Calvert St., mech. engr. R. E. Williams, 410 Municipal Bldg., bldg. constr. engr. CD 10/20/49.

**Md., Baltimore**—LIBRARY—State, Dpt. P. Imprvs., 506 Park Ave., library, University of Maryland, Baltimore Div., $400,000. John B. Funk, 506 Park Ave., ch. engr.

**Md., Crownville**—BOILER HOUSE—State, Dpt. P. Imprvs. and fdny., 506 Park Ave., Baltimore, 1 story, 56x125 ft., brick, steel, concrete floor, boiler house and boilers, Crownsville State Hospital, $500,000, Turpin Wachter & Assoc., 1004 N. Charles St., Baltimore, engrs., John B. Funk, 506 Park Ave., Baltimore, state engr. CD 12/13/44.

▲ **Mass., Cambridge**—HOUSING—City of Cambridge Housing Auth., 1416 Massachusetts Ave., 600 unit, low Rent housing. Approx. $6,000,000.

▲ **Mass., Cambridge**—GYMNASIUM—City, Planning Bd., Cambridge, memorial gymnasium, Harvard Sq. $1,500,000. CD 10/28/48.

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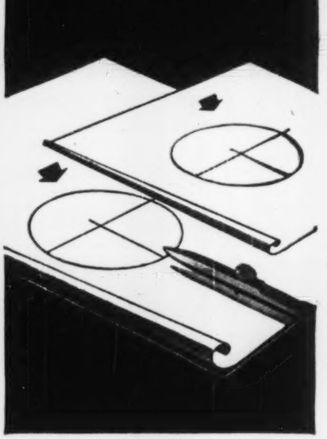

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**Mass., Fairhaven**—SCHOOL—Town, F. M. Clifford, supt. School Bd. Educ., plans by Tallman, LaBrodie & Rounseville, 222 Union St., Fall River, brick, steel auditorium-gymnasium Oxford School addn., Main St. **$250,000.** CD 3/4/49.

**Mass., Fairhaven**—SCHOOL—Town, Supt. Schools, Fairhaven, plans by Tallman, LaBrodie & Rounsville, 222 Union St., New Bedford, brick, steel, East Fairhaven School addn. **$250,000.** CD 6/4/48.

▲ **Mass., Lowell**—HOUSING—City of Lowell Housing Auth., 362 Market St., 550 unit housing. Approx. **$5,500,000.**

**Mass., Mattapoisett**—SCHOOL—Town, School Bd., Town Hall, plans by R. M. Stowell, Ned Point Rd., 2 story, bsmnt., brick, school addn. **$275,000.**

**Mass., Newton**—SCHOOL—City, Bldg. Comn., City Hall, plans by Andrew Jonas Biscoe & Goodell, 50 Congress St., Boston, 1 story, bsmnt., brick school, Oak Hill Village, **$275,000.**

**Mass., Newton**—SCHOOL—City, Supt. Schools, Bd. Educ., Newton, plans by Louis W. Ross, 131 State St., Boston, 2 story, bsmnt., brick, steel, Bowen School, Newton Center. **$350,000.** CD 9/7/48.

**Mass., North Adams**—HOUSING—City of North Adams Housing Auth., James B. Ruane, chn., 105 Main St., plans by Frederick A. Stickney, 85 Main St., 65 frame houses, Catherine and Barbour Sts., and Phillips Ave. **$700,000.** CD 1/4/49.

**Mass., North Adams**—SCHOOL—City, R. N. Taylor, supt. Schools, City Hall, plans by Arthur F. Eldridge, 85 Main St., 2 story, brick, steel school, Greylock St.; 2 story, bsmnt., brick school, Blackinton Section, **$250,000** each. CD 8/27/48.

**Mass., Northampton** — HOSPITAL — Commonwealth of Mass., Dpt. Mental Health, 100 Nashua St., Boston, plans by O. E. Nault & Sons, 48 Hamilton St., Worcester, 2 story, bsmnt., 20x210 ft., brick, steel, concrete State Hospital PM 50, Northampton State Hospital, **$500,000.** CD 11/29/46.

**Mass., Rochester**—SCHOOL—Town, Bd. Selectmen, Town Hall, plans by Harry J. Korslund, 153 Nahatan St., Norwood, 2 story, bsmnt., brick, concrete school. **$250,000.**

**Mass., Stoughton**—SCHOOL—Town, School Dpt., plans by Collens-Willis-Beckonert, 20 Newbury St., Boston, school, Central St. **$425,000.**

▲ **Mass., Taunton**—HOUSING—City of Taunton Housing Auth., City Hall, 250 unit housing. Approx. **$2,500,000.** CD 11/17.

**Mass., West Bridgewater**—SCHOOL—Town, Bd. Selectmen, Town Hall, plans by Adden Parker Clinch & Crimp, 177 State St., Boston, 2 story, bsmnt., brick, steel high school. Approx. **$250,000.**

▲ **Mich., Ann Arbor**—MEDICAL—University of Michigan, Ann Arbor, plans by Giffels & Vallet, 1000 Marquette Bldg., Detroit, medical bldg., **$2,500,000,** Skidmore Owings & Merrill, 100 W. Monroe St., Chicago 3, Ill., consult. engrs. CD 11/3/49.

▲ **Mich., Ann Arbor**—WOMENS ATHLETIC PLANT—Universtiy of Michigan Admin. Offices, Ann Arbor, stone, brick, masonry, rein.-con. womens athletic plant, **$10,000,000.**

**Mich., Detroit**—SCHOOL—Bd. Educ., 1354 Broadway, Edw. Lane, bus. mgr., plans by Malcolmson, Fowler & Hammond, 1217 Griswold St., 2 story, rein.-con., masonry, Carleton School Addn. **$330,000.** CD 8/25/44.

**Mich., Lapeer**—POWER PLANT IMPRVS.—Lapeer State Home & Training School, A. U. Langius, dir., 115A State Office, Lansing, power plant imprvs., incl. boilers 1 and 2 alterations, induced draft fans, dust collectors, combustion control equipment on boilers 1 to 4 (inclusive). **$250,000.** E. R. Little, Inc., 1807 Kales Bldg., Detroit, engrs. CD 8/25/44.

▲ **Minn., St. Louis Park**—SCHOOLS—Bd. Educ., H. Enestvedt, supt. schools, $1,650,000 bond election Mar. 21, grade school and grade school addn. **$1,400,000,** Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts.

**Miss., Petal**—SCHOOL—Forrest Co., plans by E. L. Malvaney, Millsaps Bldg., Jackson, East Forrest Junior and Senior High School. Approx. **$250,000.**

**Mo., Cape Girardeau**—SCHOOL—School Dist. of Cape Girardeau c/o Bd. Educ., plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, high school. Approx. **$850,000.** Fred E. Dormeyer, 1034 Broadway, assoc. archt.

▲ **N. H., Manchester**—HOUSING—Manchester Housing Auth., 878 S. Willow St., 400 unit housing. Approx. **$4,000,000.**

**N. C., Greensboro**—HOUSING—Greensboro Housing Auth., c/o C. C. Hartmann, archt., Greensboro, 300 Housing units for Whites. Approx. **$250,000.**

**N. C., Rockingham**—SCHOOL—Town School Bd., Rockingham, plans by Graves & Toy, 420 Piedmont Bldg., Charlotte, school, on site 12 acres northwest of high school grounds. **$400,000.**

▲ **O., Alliance**—HOSPITAL—City plans by Kling & Frost, 661 Wick Ave., Youngstown, 119 addnl. bed, 750,000 cu. ft. hospital. **$1,575,000.** CD 12/19.

**O., Canton**—HOSPITAL—Molly Stark Sanatorium, plans by Firestone, Frank & Motter, 203 Market Ave., Zone 2, hospital addn. **$750,000.** CD 11/11/46.

**O., Columbus**—SCHOOL—Prairie Local School Dist., Frank March, clk., Columbus, **$248,000** bond election Feb. 14, school, Prairie Twp.

**O., Greenfield**—BOILER HOUSE—Municipal Power Co., Village of Greenfield, Ross Graves, trustee, Greenfield, plans completed 30x40 ft., brick, steel boiler house, concrete fdn. **$100,000.** W. I. Barrows & Assoc., 1169 Reibold Bldg., Dayton, consult. engrs.

**O., Marietta**—HOSPITAL—Bd. Trustees Memorial Hospital, Marietta, plans by Kruckmeyer & Strong, Carew Tower, Cincinnati, 340,000 cu. ft. 51 addnl. bed Marietta Memorial Hospital. **$600,000.** CD 1/13.

▲ **O., Parma**—HIGH SCHOOL—Bd. Educ., 5401 W. 54 St., Cleveland, plans by Fulton, Krinsky & Delamotte, 6014 Euclid Ave., Cleveland, 2 story, bsmnt., brick, block, steel high school addn., W. 54 and Longwood Aves., **$2,000,000.** Levi B. Mumma, 6014 Euclid Ave., Cleveland, consult. engr. CD 11/21.

**Pa., Connellsville**—SCHOOL—School Dist. of Connellsville plans by Altman & Altman, 206 Derrick Ave., Uniontown, 2 story, bsmnt., Junior High School addn., incl. gymnasium. **$250,000.**

**Pa., Danville**—HOSPITAL HEATING SYSTEM—General State Auth., 18 and Herr Sts., Harrisburg, fireproofing and modernizing heating sys. at Danville State Hospital, **$376,000.** A. F. Jones, c/o owner, ch. engr.

**Pa., Retreat**—BOILER PLANT—General State Auth., 18 and Herr Sts., Harrisburg, boiler plant addns. at Retreat State Hospital. **$353,982.** A. F. Jones, c/o owner, ch. engr.

**Pa., Shippenburg**—HEATING PLANT—General State Auth., 18 and Herr Sts., Harrisburg, heating plant at Shippensburg State Teachers College, **$280,000.** A. F. Jones, c/o owner, ch. engr.

**Pa., Waynesburg**—JAIL—Bd. Comrs. Greene Co., Court House, plans by Altman & Altman, 206 Derrick Ave., Uniontown, 2 story, bsmnt., jail. **$250,000.**

**R. I., Scituate**—HIGH SCHOOL—Town, School Dpt., Main St., plans by Howe, Prout & Ekman, 17 Custom House St., Providence, 2 story, brick Junior and Senior High School. **$800,000.**

**Tex., Brownsville**—SCHOOLS—Brownsville Independent School Dist., Brownsville, voted bonds, Junior-Senior School addns., **$250,000;** grade school, **$250,000;** elementary school, **$250,000.** Page, Southerland & Page, 602 West Ave., Austin, archts. CD 1/19.

▲ **Tex., Harlingen**—HOUSING—L. A. Westlake, chn. Housing Auth., Harlingen, plans by W. C. Bowman, Cocke, Bowman & York, 1220 W. Harrison St., 200 housing units. **$1,500,000.**

**Tex., Haskell**—HOUSING—Haskell Housing Auth., Haskell, 50 low-rental housing units. **$350,000.**

▲ **Tex., Houston**—ADMINISTRATION, etc.—Houston Independent School Dist., 1600 Washington St., plans by Stayton Nunn, 2017 W. Gray St., administration, **$2,750,000;** central warehouse, **$200,000.** CD 6/23/47.

**Tex., Jefferson**—HOUSING—Housing Auth., c/o George H. Liverman, Jefferson, 50 low rental housing units, **$350,000.**

▲ **Tex., Mineola**—HOUSING—Tom Pegues, chn. Housing Auth., Mineola, plans by Paul G. Bentley, Burt Bldg., Dallas, 200 housing units. **$1,500,000.**

**Tex., Ranger**—HOUSING—Ranger Housing Auth., Ranger, 80 low rental housing units. **$560,000.**

**Tex., San Antonio**—COLLEGE EXPANSION—San Antonio Union Junior College Dist., S. Alamo St., St. Phillips College expansion, **$500,000.** CD 8/17.

▲ **Tex., San Antonio**—BUILDINGS—State Bd. Control, Austin, tubercular bldg. for mental patients, **$1,000,000;** dormitory or living quarters, replacement for men, **$500,000;** administration, **$500,000;** dormitory or living quarters replacement for women, **$500,000;** dining hall, **$400,000;** institution bldg. **$350,000;** occupational therapy and staff residences, **$250,000;** employees quarters, **$300,000;** power and heating plant, $150,000; recreational and chapel, **$250,000;** sewers, **$75,000;** WW, **$50,000,** for San Antonio State Hospital. CD 1/5/49.

**Va., Bristol**—HOUSING—Bristol Housing Auth., Bristol 100 housing units.

**Wis., Milwaukee**—CLUB HOUSE—Milwaukee Boys Club, 1023 N. Jackson St., Zone 2, plans by Fitzhugh Scott, 724 E. Mason St., Zone 2, club house, **$550,000.**

▲ **Wis., Milwaukee**—HOSPITAL—Mt. Sinai Hospital, 908 N. 12 St., Zone 3, hospital addn. **$2,500,000.**

**Wis., Sheboygan**—HOSPITAL—Sheboygan Memorial Hospital, 2633 N. 7 St., 3 story, 44x170 ft. hospital addn. **$550,000.**

**Alta., Athabaska**—HOSPITAL—Municipal Hospital Bd., J. P. Evans, secy., plans by Rule Wynn & Rule, 11422 Jasper Ave., Edmonton, hospital, Approx. **$299,000** CD 4/30/46.

**Alta., Magrath** — HOSPITAL — Municipality plans by Meech & Mitchell, 108 McFarland Bldg., Lethbridge, hospital. **$250,000.**

**Ont., Arnprior**—SCHOOL—Public School Bd., A. Reid, secy., plans by Abra, Balarrie & Shore, 55 Metcalfe St., Ottawa, 1 story, no bsmnt., brick school addn. Approx. **$300,000.**

▲ **Ont., Brantford**—HOSPITAL WING—General Hospital Bd., Brantford, 6 story hospital wing. **$1,000,000.** Harold J. Smith, 62 Charles St. E., Toronto, engr. CD 12/17/45.

**Ont., Espanola**—HIGH SCHOOL—High School Area Bd., W. F. Jones, secy., Espanola, high school. Approx. $300,000.

**Ont., Lindsay**—COLLEGIATE UNIT—Bd. Educ., J. R. Wilford, secy., Lindsay, plans by J. B. Parkin Assoc., 717 Church St., Toronto, collegiate unit. Approx. **$550,000** or **$890,000.** CD 11/11.

**Ont., Walkerton**—HIGH SCHOOL—High School Dist. Bd., Walkerton, high school, No. 9 Hy. **$250,000.**

**Que., Montreal**—SCHOOLS—Roman Catholic School Comn., 117 St. Catherine W., plans by Gaetan Le Borgne, 1230 Beaubien St. E., 12 room school for Parish of St. Vital, on Blvd. St. Vital, east of Laurentide Ave., **$300,000;** school for Parish of St. Albert, **$350,000.**

**Yukon Territory, Dawson**—HOSPITAL—St. Mary's Hospital Bd., Dawson, hospital. **$300,000.**

## COMMERCIAL BUILDINGS

▲ **Calif., Colma**—RESIDENCES—Standard Bldg Co., 2222—19 Ave. S. E., 1500 residences between Hillside Blvd. and Old Mission Rd. Approx. **$1,000,000.**

▲ **Calif., Glendale**—APARTMENT—Albert C. Lane Corp., 108 N. Glendale Ave., plans by Heath Wharton, 672 S, Lafayette Park Pl., Los Angeles, apartment at Chevy Chase and Glen Oaks Blvd. **$1,255,000.**

▲**Calif., San Francisco**—SHOPPING CENTER—Stoneson Bros., 3455 19 Ave., plans by Wurdeman & Becket, 5627 Wilshire Blvd., Los Angeles, shopping center for Lake Merced District, incl. dept. store, theatres, medical-dental bldg., etc. Approx. **$30,000,000.**

▲ **Calif., San Mateo**—RESIDENCES—Hansen Homes, Inc., 200 Masonic Ave. S. E., 227 residences, Old Meadows Barn area, **$4,000,000.** W. D. Soule, 318 B St., consult engr.

▲ **Conn., East Hartford** — HOUSING — Garfield Park Homes, Inc., M. Shapiro & Sons Constr. Co., Inc., 254 W. 54 St., New York, N. Y., 39 frame, single family homes, Hills St. **$1,200,000.**

**Conn., Middletown**—HOUSING—Mohawk Corp., Wadsworth St., plans by C. E. Segerberg, 363 Main St., 85 single frame homes Wadsworth St. **$700,000.**

**Fla., Miami**—STORE—Richard's Dept. Store, 1. N. E. 1 St., 70,000 sq. ft. department store addn. Approx. **$250,000.** Maurice H. Connell & Assoc., 200 Langford Bldg., consult. engrs.

▲**Ga., Atlanta**—OFFICE—Realty Operations, Inc., c/o Ben. J. Massell Companies, 32 Pryor St. N.E., plans by H. A. Rawlins, c/o owner, office. **$1,600,000.** CD 1/9.

**Ill. Chicago**—RESIDENCES—Beverly Homes Constr. Co., 3900 Willth St., Zone 43, plans by Floyd Evans, 8317 S. Prarie Ave., Zone 19, thirty-four 1 story, brick residences **$300,000.**

**Ill., LaGrange**—PARISH HOUSE, etc.—First Congregation Church, 100 S. 6 Ave., plans by J. C. Llewellyn Co., 38 S. Dearborn St., Chicago, 2 story, brick, stone, steel, concrete parish house and chapel. **$250,000.**

**Ill., Oak Park**—SHOPPING CENTER—Samuel W. Banowitz Syncicate, Lake and Forest Sts., plans by Sidney H. Morris & Assocs., 134 N. LaSalle St., Chicago, Zone 2, shopping center. **$500,000.** J. C. Penney Co., lessee.

**Ia., Davenport**—CHAPEL—St. Ambrose College, Diocese of Davenport, 518 W. Locust St., plans by Edw. J. Schulte, 920 E. McMillan St., Cincinnati, O., chapel. **$300,000.** CD 1/19.

**Me., Biddeford** — HOSPITAL — Webber Hospital Assoc., 350 Elm St., plans by Kendall Taylor & Co., Inc., 221 Columbus Ave., Boston, Mass., 2 wing, brick hospital addns. **$700,000.** Neergaard & Craig, 41 E. 42 St., New York City, N. Y., consult. engrs.

**Me., Cortland**—RESIDENCES—Boulevard Gardens, Myron Widett, 314 Commonwealth Ave., Boston, Mass., plans by Wm. O. Armitage, 23 Mitchell Rd., South Portland, 120 ranch type residences. Approx. **$925,000.**

**Md., Baltimore**—RESIDENCES—Charles Castoro, 114 E. Belvedere Ave., twenty-eight 2 story, 20x23x32 ft., brick, semi-detached residences, 3609 Southern Ave., 3500-18, 3513-19 Rosekemp Ave., 4700-06, 4701-17 Crosswood Ave. **$250,000.**

▲ **Mass., Boston**—LIBRARY—Northeastern University, 360 Huntington Ave., plans by Coolidge, Shepley, Bulfinch & Abbott, 1 Court St., 5 story, brick, steel library, Huntington Ave., **$2,000,000**; 2 story, brick, steel, concrete physical educ. bldg., College Campus, **$1,100,000.** CD 3/3/39.

**Mass., Brookline**—NURSES HOME—Beth Israel Hospital, 330 Brookline Ave., plans by Krokyn & Browne, 184 Boylston St., Boston, 4 story, bsmnt., brick nurses home addn. **$250,000.**

**Mass., Deerfield**—ACTIVITIES—Deefield Academy, F. L. Boyden, headmaster, plans by William & Goeffrey Pratt, 101 Park Ave., New York City, N. C., activities bldg. Approx. **$600,000.**

**Mass., Deerfield** — DORMITORY — Deerfield Academy, Frank L. Boyden, master, plans by Wm. & Geoffrey Platt, 101 Park Ave., New York, N. Y., 3 story, brick, steel dormitory, campus, **$375,000.**

**Mass., Waltham**—CLUB—Boy's Club of Waltham, Inc., Thomas Murphy, chn., club. **$325,000**

**Mass., Wollaston**—COLLEGE—Eastern Nazarene College, Dr. E. S. Mann., pres., 23 E. Elm St., women dormitory, men's dormitory, educational bldg., refectory bldg. and central heating plant, Quadrangle, Wollaston, Approx. **$250,000** each.

**Mich., Grosse Pointe (br. Detroit)**—SCHOOL—St. Pauls Catholic Church, Father Richard Parrish, assn't, pastor, Grosse Pointe Blvd., stone, masonry, concrete, rein.-con., structural steel school addn., St. Paul's Parish, **$600,000.**

**Mich., Highland Park**—AUDITORIUM and EDUCATIONAL—Highland Park Baptist Church, plans by Lee Butler, 19111 Asbury Park, Detroit, 4 story, 97x112 ft. masonry concrete, auditorium and educational bldg. **$400,000.**

▲ **Mo., Clayton**—SHOPPING CENTER—Clayton Fifth Ave. Development Co., c/o Nathaniel M. Glick, pres., 801 Chestnut St., St. Louis, Zone 1, retail shopping center, Forsyth Blvd. and Parkside Dr., incl. 3 story store, 2½ story, store and office bldg., colonial 1 story, 150x565 ft. bldg. Approx. **$2,000,000.**

**O., Cleveland**—CHURCH, etc.—St. Johns Evangelical Lutheran Church, E. 176 St. and Nottingham Rd., 1

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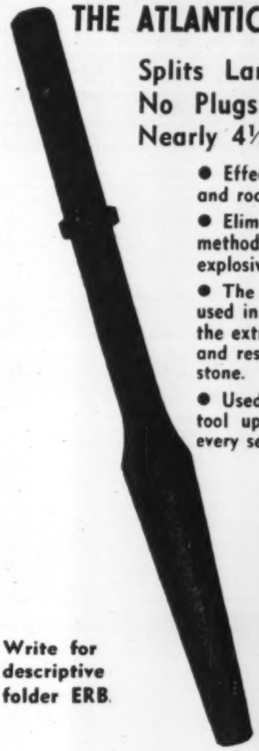

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story, bsmnt., brick, block church and recreation center, Nottingham Rd. and Lakeshore Blvd. **$300,000.**

**N. H., Keene** — OFFICE — Peerless Casualty Co., 19 Federal St., plans by Cram & Ferguson, 248 Boylston St., Boston, Mass., office, West St. **$500,000.**

**N. Y., Astoria**—APARTMENT—Crescent Manor, Inc., c/o Samuel Paul, 163-18 Jamaica Ave., Jamaica, 6 story apartment, 31 Ave. and Crescent St. **$375,000.**

**N. Y., Flushing**—APARTMENT—Burling Bldg. Corp., c/o A. Pompa, 31-14 Broadway, Long Island City, 6 story apartment, 34 Ave. and west of 146 St., **$800,000.**

▲ **N. Y., Flushing**—APARTMENT—Adolph Schock, c/o Albert E. Schaefer, 527 Fifth Ave., New York, 17, N. Y., 2 story, garden apartment project in area bounded by 74 Ave., 160 St., 76 Rd. and Parson Blvd., **$725,000**; 2 story garden apartment in area bounded by 76 Ave. 75 Rd. and 160 St., **$325,000.**

**N. Y., Hollis**—APARTMENT—Iriquois Apartments, Inc., c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, 6 story apartment, 195 St. south of Jamaica Ave. **$500,000.**

**N. Y., Jackson Heights**—APARTMENT—Amherst Apartments, Inc., c/o Philip Birnbaum, 303 W. 42 St., New York Zone 18, 6 story apartment, 78 St. south of 34 Avenue, **$975,000.**

**N. Y., Jackson Heights**—APARTMENT—F. B. F. Realty Corp., c/o Joshua Tabatchnik, 16 Court St., Brooklyn, Zone 2, 6 story apartment, 37 St. between 75 and 76 Sts. **$675,000**

**N. Y., Jackson Heights**—APARTMENT—K & L Apartments, Inc., c/o Kavy & Kavovitt, Inc., 44 Court St., Brooklyn, Zone 2, 6 story apartment, 34 Ave. between 87 and 88 Sts. **$588,000.**

**N. Y., New York**—BUILDING—Continental Casualty Co., 76 William St., Zone 5, plans by Kenneth B. Norton, 1 E. 44 St., Zone 17, building addn. at site, **$800,000.**

**N. Y., New York**—OFFICE—Rockefeller Center, Inc., 50 Rockefeller Plaza, Zone 20, plans by Carson & Lundin, 50 Rockefeller Plaza, Zone 20, office alterations, 30 Rockefeller Plaza. **$300,000.**

▲ **N. Y., Rego Park**—APARTMENTS—Rego Park Apartments, c/o Kelly & Gruzen, archts., 80 Fifth Ave., New York, Zone 3, 6 apartments in area bounded by Woodhaven Blvd., 62 Dr., 84 St. and Dry Harbor Rd. **$3,875,000.**

**O., Shaker Heights**—APARTMENT—Charles Shane, 13700 Shaker Blvd., 70 suite apartment, Shaker and Coventry Blvd. Approx. **$250,000.**

▲ **O., Toledo**—APARTMENTS—Lakewood Gardens, Inc., 140 Leader Bldg., Cleveland, plans by Weinberg & Teare, 1227 Schofield Bldg., Cleveland, twenty 32x92 ft. and fifty-two 32x114 ft. apartments all 2 story, bsmnt., storm sewers, paving between Central Ave. and Kenwood Blvd. **$4,500,000.** Porter W. McDonnell, Commerce Bldg., consult. archt.

**Pa., Chester**—OFFICE—Scott Paper Co., foot of Market St., 4 story office. Approx. **$250,000.** United Engineers & Constructors, Inc., 1401 Arch St., Phila., consult. engr.

▲ **Pa., Harrisburg**—HOTEL—Penn-Harris, Hotel Franklin Moore, managing dir., Third and Walnut Sts., plans by Lawrie & Green, 321 N. Front St., 200 room hotel addn. **$2,000,000.** Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., assoc archts. CD 1/17.

**Pa., Kennett Square**—APARTMENT—Owner, c/o William L. Redditt, archt., 25 Tenby Rd., Havertown, 2 apartments, Scarlett and Lafayette Aves. **$250,000.**

**Pa., New Castle**—SCHOOL—St. Vitus Parochial School, Jefferson and Home Sts., plans by W. G. Eckles Co., Lawrence Savings & Trust Bldg., 2 story, 80x148 ft., brick, tile school. **$250,000.**

▲ **Pa., Phila.** — APARTMENT HOUSE — Matthew K. Stevens, 225 S. 15 St., plans by George S. Idell, 117 S. 17 St., apartment, 19 and Walnut Sts. **$12,000,000.**

**Pa., Pittsburgh** — APARTMENT — Rex Mansman, 701 Washington Rd., Zone 16, plans by Phillip Friedman, 121 S. Negley Ave., 2 and 3 story, brick, block apartment, Leland Park, Baldwin Twp. **$300,000.**

**Pa., Pottstown**—DORMITORIES—The Hill School, E. High St., plans by W. G. Eckles Co., 719 L S & T Bldg., New Castle, 4 dormitories. Approx. **$500,000.**

**Pa., Wilkes Barre**—STORE—F. W. Woolworth Co., 233 Broadway, New York, N. Y., store, S. Main St. Approx. **$250,000** H. W. Akes, Fidelity Trust Bldg., Phila., co. engr. in charge of construction.

**R. I., Bristol**—SCHOOL, etc.—St. Elizabeth's Church, H. R. Roch, pastor, Hood St., plans by Samuel M. Morino, 108 Clarendon Ave., Providence, 1 and 2 story, bsmnt., approx. 30,000 sq. ft. brick, concrete school and hall, Wood St. **$250,000.**

**Tex., Bellaire**—DWELLINGS—J. S. Norman Co., 4815 Richmond Rd., Houston, 40 addnl. dwellings Normanor Addn., **$325,000**; 50 addnl. dwellings in Ridgecrest Addn. **$400,000.**

▲ **Tex., Dallas**—APARTMENT—Joe J. Danna & B. A. & Hayden Ellis, 4619 Verdun St., plans by Lee R. Greenfield, designing archt., 4608 Wateka St., 25 two story low rental apartments, on 10 acre site facing on Compton St., eastern Oak Cliff. **$1,000,000.** O. Phillips, 2723 Matern St., archt. (site planner only) CD 1/23.

**Tex., Dallas**—FOOD STORE—Wyatt Food Stores, 705 Young St., masonry food store, concrete beam and pier fdn. **$250,000.**

▲ **Tex., Ft. Worth**—APARTMENTS—Westchester Apartments, c/o Judge E. P. Hall, vice-pres., plans by Wilson & Patterson, 202 Majestic Bldg., 11 or 12 story, masonry apartment house, 326 apt. units, with 30,000 sq. ft. commercial floor space on ground floors, Penn Ave. and Summit St. **$3,000,000.**

**Tex., Grand Prairie**—STORE—Wyatt Food Stores, 705 Young St., Dallas, masonry food store, concrete beam and pier fdn. **$250,000.**

**Tex., Houston**—DWELLINGS—H. H. Clark & Son, 1801 W. 14 St., 50 frame dwellings, concrete fdn., between 27 and 28 Sts. west of Dian, **$300,000**; 36 frame dwellings, 14 and ½ westward in Clark Pines sub-division, **$265,000**; 50 frame dwellings in Heights subdivision, **$325,000.**

▲ **Tex., Houston**—APARTMENT—H. R. LeMay, 2156 W. Alabama St., 268 apartment units, N. Shepherd and 28 Sts. **$1,750,000.**

▲ **Tex., Houston**—COMMERCIAL—Glenn McCarthy, c/o Shamrock Hotel, commercial bldg., in McCarthy Center on Main St. Approx. **$1,000,000.**

▲ **Tex., Houston**—DWELLINGS—Lawrence O'Donnell, 9102 Humble Rd., 250 dwellings, various locations. **$1,250,000.**

**Tex., Houston**—HOMES—Hodell & Co., 2111 Westheimer St., 250 frame Negro Homes. **$800,000.**

**Tex., LaPorte**—DWELLINGS—Moore & Moore, LaPorte, 30 frame, cedar shakes dwelling. **$250,000.**

**Tex., Mission**—DWELLINGS—D. L. Rankin, Mission, 40 dwellings. **$260,000.**

**Tex., San Antonio**—DWELLINGS—Thurman Barrett, 6109 S. Flores St., plans by Shoop & Roberts, 122 Olmos Dr., 30 dwellings, Ware Blvd., **$250,000**; 65 dwellings, McCauley Dr., **$350,000.**

▲ **Tex., San Antonio**—DUPLEXES—E. J. Burke & Sons, 4220 S. Zarzamora St., 100 duplexes and shopping center, frame type, E. Commerce St., M.K.T. Ry., **$850,000**; 200 frame single family dwellings (Negroes), off E. Commerce St., **$800,000.** Harmon & O'Donnell, Temple Court Bldg., Denver, Colo., consult. engrs.

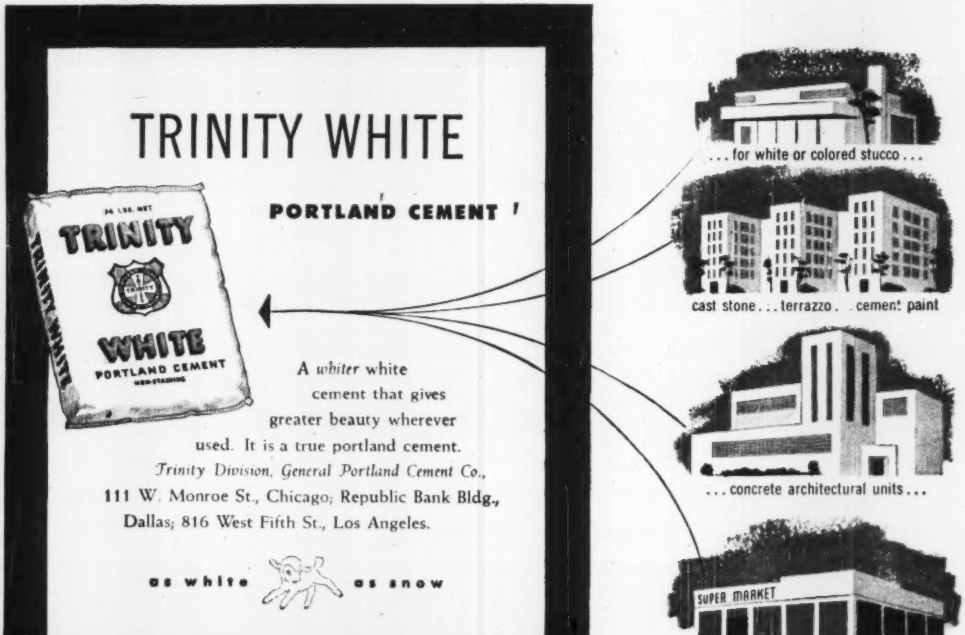
**Wash., Richland**—CHURCH—Northwest United Protestant Church, Richland, church. **$250,000.**

▲ **Wis., Milwaukee**—HOSPITAL—Evangelical Deaconess Hospital, 1821 W. Wisconsin Ave., Zone 3, plans by Charles A. Cahill, 724 E. Mason St., Zone 2, hospital addn. **$1,500,000.** Charles C. Reynolds, 11318 W. Appleton Ave., Zone 16, consult. engr. CD 11/15/44.

▲ **Wis., Milwaukee**—HOSPITAL—Felician Sisters, 3249 S. 18 St., Zone 15, plans by Francis S. Gurda, 1015 W. Mitchell St., Zone 4, 5, 6 and 7 story, part bsmnt., St. Francis Hospital, **$5,800,000.** CD 12/6/44.

**Wis., Milwaukee**—ART SCHOOL—Layton School of Art, 759 N. Jefferson St., Zone 2, art school, **$425,000.**

**Wis., Milwaukee**—HOSPITAL—St. Anthony's Hospital, 1022 N. 10 St., Zone 3, plans by E. Briekmaier & Sons Co., 735 N. Water St., Zone 2, hospital addn. **$450,000.**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**Wis., Milwaukee**—APARTMENT—Sam Taxman, 229 E. Wisconsin Ave., Zone 2, 164 unit apartment, approx. **$500,000.** M. B. Coifman, 1220 N. Milwaukee St., Zone 2, consult. engr. CD 12/30/47.

**Wis., Wausau**—CHURCH—Zion Lutheran Congregation, 507 5 St., plans by Frank A. Abrahamson, 594 Endicott Bldg., St. Paul, Minn., church, **$300,000.** CD 13/31/46.

**N. B., Campbellton**—CHURCH—Parish of Notre Dame des Neiges, Rev. M. J. A. Poirier, cure., plans by P. Lamieux, 760 Victoria Sq., Montreal, Que., church. Approx. **$250,000.** P. D'Allemagne, 335 Berwick Ave., Mount Royal, Que., engr.

**N. B., Campbellton** — CHURCH SUPERSTRUCTURE — Roman Catholic Parish of Our Lady of the Snows, Rev. J. A. Poirier, P.P., 2 Central Ave., plans by P. Lemieux, 760 Victoria Sq., Montreal, Que., church superstructure. **$250,000.**

**Ont., London**—APARTMENT—Realty Development Co., W. McLean, 350 Dufferin Ave., 3 story, bsmnt., 150x150 ft., 48 suites brick, steel apartment, Grand Ave. **$300,000.**

**Que., Montreal**—NURSES HOME—Salvation Army in Canada, 1485 Drummond St., plans by G. D. Thompson, 1241 Guy St., nurses home, Walkley Ave. **$275,000.**

**Que., Rimouski**—NURSES RESIDENCE—Bd. Administration, S. Joseph Hospital, Rimouski, plans by Albert Leclerc, Rimouski, nurses residence for Hospital St. Joseph, **$750,000.** CD 10/21/48.

**Que., Shawinigan Falls**—CHURCH—Roman Catholic Parish of St. Patrick, Shawinigan Falls, church. **$250,000.**

## INDUSTRIAL BUILDINGS

▲**Ga., Savannah**—PLANT—Union Bag & Paper Corp., Lathrop Ave., plant addn. **$1,500,000.**

**Calif., Hawthorne**—SERVICE YARD—Southern California Gas Co., 810 S. Flower St., Los Angeles, plans by Parkinson, Powelson, Briney, Bernard & Woodford, 410 N. LaBrea St., Los Angeles, service yard, garage, storage bldg., shop and locker room, **$111,000.**

**Ill., Chicago**—REFRIGERATION, etc.—Borden Co., 1809 S. Kostner St., plans by Cowell, Robinson & Martin, 25 W. 42 St. New York, N. Y., 20,000 sq. ft., concrete, steel, brick refrigeration and distributing bldg. **$200,000.**

▲ **Ind., Gary**—PLANT—Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh, Pa., industrial plant expansion, **$100,000,000,** United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., consult engrs.

**Kan., Bird City**—GRAIN ELEVATOR—Bird City Equity Exchange, Bird City, grain elevator, **$160,000.**

▲ **Mass., Cambridge**—PLANT—Lever Bros. Co., 50 Memorial Dr., soap mfg. plant expansion, modernization. **$2,000,000.**

**Neb., Norfolk** — WAREHOUSE — General Wholesale Grocery Co., Norfolk, warehouse with offices, **$500,000.**

**N. M., Albuquerque** — TERMINAL, etc. — Greyhound Union Bus Terminal, 905 Commerce St., Fort Worth, Tex., plans by Gordon Ferguson, Albuquerque, 1 story, brick, masonry, steel terminal, incl. storage, etc. **$100,000.**

**N. Y., New York**—GARAGE, etc.—P. Ballantine & Sons, 57 Freeman St., Newark, N. J., plans by Frank S. Parker Assoc., 256 E. 49 St., Zone 17, garage and offices, 1133 York Ave. **$400,000.**

▲ **O., Youngstown**—POWER PLANT, etc.—Republic Steel Corp., 335 Market St., power plant, $6,000,000 transportation bldg., Mill Wright-3 combustion bldgs., engineering bldg., and rigging bldg., multi-million dollars. United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., consult. engr.

▲ **Okla., Elk City**—PLANT—Shell Oil Co. Inc., Mayo Bldg., natural gasoline plant. **$6,000,000.**

**Okla., Muskogee**—GRAIN ELEVATOR—W-P Milling Co., Muskogee, 210,000 bu. grain elevator. **$100,000.**

▲ **Okla., Okmulgee**—PLANT—Phillips Petroleum Co., Bartlesville oil separating and processing plant. **$4,500,000.**

**Pa., West Point**—PUMP HOUSE, etc.—Sharp & Dohme, 640 N. Broad St., Phila., pump house and incinerator. Approx. **$150,000.** United Engineers & Constructors, Inc., 1401 Arch St., Phila., consult. engr.

▲**S. C., Newberry**—MILL—Kendall Mills, Newberry, plans by Fred N. Simmons, 703 W. Marion St., Shelby, cotton mill. **$1,000,000.**

**Tenn., Memphis**—TECHNICAL UNIT—International Harvester Co., 180 N. Michigan St., Chicago 1, Ill., technical unit in plant. **$300,000.**

▲ **Tex., Corpus Christi**—CHEMICAL and REFINERY—Pontiac Refining Corp., 3400 Lawrence Dr., and Chicago Corp., 3105 Leopard St., chemical and refinery. **$15,000,000.** CD 5/9/47.

**Tex., Galveston**—WAREHOUSE—Galveston Wharves, 2324 Strand St., 1 story, 100x400 ft. masonry, steel, concrete, brick warehouse. **$600,000.**

**Tex., Houston**—YARDS and WAREHOUSE—Brown Oil Tools, Inc., 2216 Campbell St., yards and warehouse. **$100,000.**

**Tex., Waco**—BUS TERMINAL—Greyhound Bus Co., Waco, masonry bus terminal. **$200,000.**

**Va., Winchester**—PLANT—Shenandoah Silica Co., Winchester, rebuilding plant. **Approx. $100,000.**

**Wash., Seattle**—PLANT, etc.—Freedom Valvoline Oil Co., 2204 1 Ave. S., mixing plant and warehouse, **$100,000.** Stevenson & Rubens, Olympic National Bldg., consult. engrs.

▲ **Alta., Red Deer**—PLANT—Western Cement Ltd., Red Deer, cement plant. **Approx. $2,000,000** incl. equip.

**B. C., Rutland**—PLANT, etc.—Kelowna Growers Exchanges, Kelowna, rein.-con. cold storage plant and packing house. **Approx. $300,000.**

▲**Man., Winnipeg**—REFINERY—Imperial Oil, Ltd., 56 Church St., Toronto, Ont., plans prepared oil refinery at East Paul, 7 mi. from here on east bank of Red River. Approx. **$10,000,000.** CD 10/26/45.

**Que., St. Laurent**—PLANT—Canadian Industrial Glass Ltd., 8 Napoleon St., concrete, brick plant addn. **$100,000.** E. Peters, c/o owner, engr.

**Que., Three Rivers** — BREWERY — Quebec Breweries, Ltd., 14 Royal St., 2½ story, 140x240 ft., concrete, steel, brick brewery, **$700,000.**

## UNCLASSIFIED

**Alabama**—RURAL DISTRIBUTION LINES—Joe Wheeler Electric Membership Corp., Hartselle, 75 mi. rural distr. line and sys. imprvs., Morgan Co., **$975,000.**

**Calif., Alhambra**—RECREATION—City, plans by Quintin & Westberg, 712 N. Garfield St., 112x160 ft. concrete block park recreation bldg. Approx. **$100,000.**

**Calif., South Pasadena**—TRANSMISSION LINE—City plans **$350,000** bond election Wilson Transmission line and constr. second line. Frank M. Clough, city engr.

**Fla., Tallahassee**—STADIUM—State Bd. Control, Tallahassee, plans by Guy C. Fulton & Associates, state archts. and engrs., Peabody Hall of University of Florida, Gainesville, stadium at Florida State University. Approx. **$250,000.**

**Ill., Salem**—DRIVE-IN THEATRE—Cluster Circuit, c/o Loren Cluster, Salem Theatre, 119 S. Broadway, 500-car drive-in motion picture theater, Route No. 37 about ½ mi. south of city. Approx. **$100,000.**

**Kansas**—RURAL DISTRIBUTION LINES—Pioneer Co-operative Assn., Ulysses, 27 mi. transmission lines, sys. imprvs., tie lines, generating facilities, 514 mi. rural distr. lines, acquisition adonl. electrical facilities in Grant, Stevens and Stanton Counties, **$782,000.** Frank Horton & Co., Lamar, Mo., consult. engrs.

**Louisiana**—RURAL DISTRIBUTION LINES—Dixie Electric Membership Corp., 2900 North St., Baton Rouge, 67 mi. rural distr. lines, sys. imprvs., Proj. LA-13, **$225,000.** Pat M. Sullivan, Stahlman Bldg., Nashville, Tenn., consult. engr. CD 5/12/48.

**Maine**—RURAL DISTRIBUTION LINES—Kingman Electric Co., Kingman, 25 mi. rural distr. lines, 18 mi. 44 kv transmission line and sys. imprvs., Penobscot Co., **$210,000.** CD 5/22/47.

▲ **Mass., Saugus**—OIL STORAGE FARM—M. Thomas Green Trust, 27 State St., Boston, oil storage farm, incl. oil tanks, storage plant, etc., Saugus Marshes near Salem Turnpike. **$5,500,000,** Whitman & Howard, 89 Broad St., Boston, consult. engr.

▲ **Mich., Detroit**—FAIR BUILDINGS—Mich Dpt. Admin. Div., A. N. Langius, dir., 116 A State Office Bldg., Lansing, Junior Miss and Junior Farmer Bldg.; sheep and swine bldg. addn., home arts bldg., other bldg. repairs, **$1,027,000.**

**Minnesota**—RURAL DISTRIBUTION LINES—Tri-County Electric Co-operative, Rushford, 128 mi. rural distr. lines and sys. imprvs., Fillmore Co. **$530,000.** CD 10/11/48.

▲ **Missouri**—RURAL DISTRIBUTION LINES—Howell-Oregon Electric Co-operative, West Plains, addnl. rural distr. lines, and sys. imprvs. **$1,560,000.**

**N. Y., New York**—RECREATION CENTER—Dpt. Parks, Arsenal Bldg., 64 St. and 5 Ave., plans by Edward D. Stone, 50 E. 64 St., Zone 21, recreation center in Thomas Jefferson Park, Franklin D. Roosevelt Dr. between E. 111 and E. 114 Sts. **$700,000.** CD 4/5/46.

**North Dakota**—RURAL DISTRIBUTION LINES—Capitol Electric Co-operative, Bismarck, 334 mi. rural distr. lines, Burleigh Co. **$440,000.** Ulteig Eng. Corp., 1114½ Front St., Fargo, consult. engrs.

▲ **North Dakota**—RURAL DISTRIBUTION LINES—James Valley Electric Co-operative, Edgeley, 813 mi. rural distr. line, La Moure Co., **$1,075,000.**

▲**North Dakota**—RURAL DISTRIBUTION LINES—Slope Electric Co-operative, New England, rural distr. lines and sys. imprvs., Hettinger Co. **$1,060,000.** Ulteig Eng. Corp., Fargo, consult. engrs.

▲**North Dakota**—RURAL DISTRIBUTION LINES—Tri-County Electric Co-operative, Carrington, rural distr. lines, sys. imprvs., etc., Foster and adjoining counties. **$1,395,000.** Ulteig Eng. Corp., Fargo, consult. engrs.

† **Tex., Alpine**—RADIO STATION, etc.—National Park Service, Interior Bldg., 19 and C Sts. N. W. Wash. 25, D. C., radio station and communications sys., near here. **$114,100.**

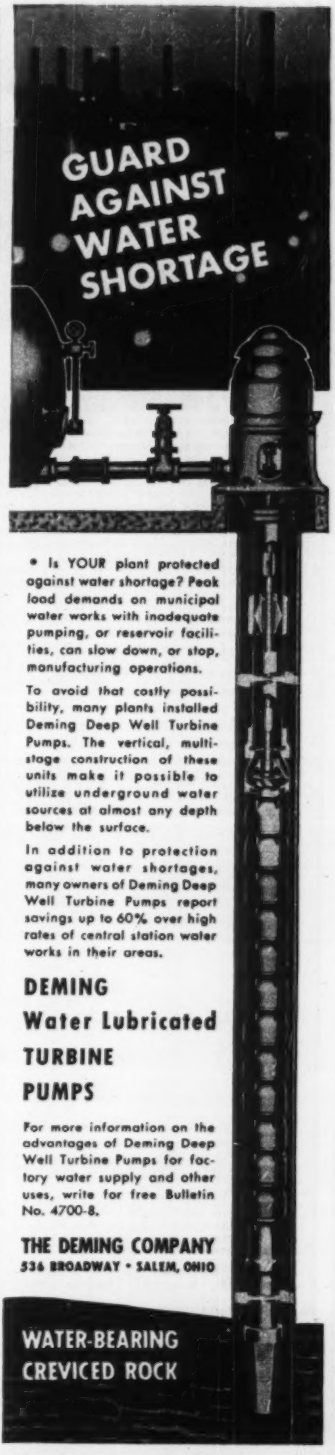
**Tex., Corpus Christi**—OIL PIPELINES, etc.—Humble Pipe Line Co., Weber Bldg., running crude oil pipelines to docks, **$50,000;** erecting 2 steel wharves, **$100,000.**

**Tex., San Antonio**—DRIVE-IN THEATER—Landsman-Richter Enterprises, 2201 Broadway, plans by Fred Grothaus, 6109 S. Flores St., drive-in theater. **$250,000.**

**British Columbia**—DAM, etc.—British Columbia Power Comn., Victoria, dam and power house, **$689,000;** 60,000 volt 24 mi. transmission line with transformer stations, **$275,000,** at Sechelt Area.

**Man., Winnipeg** — TRACKAGE — Winnipeg Electric Co., Ltd., Notre Dame and Albert Sts., replacing 2 mi. streetcar trackage, on Portage Ave. **$400,000.**

**Que., Cowansville**—ARENA—Cowansville Arena Ltd., Cowansville, arena, **$100,000.**



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# CONSTRUCTION REPORTS—Second Section

## WATER SUPPLY

### BIDS ASKED

**Ont., Scarborough**—B.A. 2/13—A. W. Farlinger, 2000 Yonge St., Toronto, 12,900 ft. 6 and 12 in. water mains and house connections, at Sub-Division, in Pharmacy Ave. Proctor, Redfern and Laughlin, 11 Jordan St., Toronto, engrs.

**Ont., Toronto**—B.A. 2/13—A. W. Farlinger Real Estate, 2000 Yonge St., supply, install approx. 12,900 ft. 6 and 12 in. watermains house connections, appurtenances, in Fairmount Park Sub-division, Pharmacy Ave., Scarsborough Twp. Approx. $80,000. Proctor, Redfern & Laughlin, 11 Jordan St., engrs.

**Ala., Austinville**—B.A. 2/15—City, WW imprvs. O'Toole Eng. Co., Watts Bldg., Birmingham, engr.

**Tex., Dallas**—B.A. 2/16—Park-Cities Dallas County Water Control & Imprvt. Dist., c/o Ed. S. Wesson, Courthouse, water treatment plant bldg., booster pump station, chemical storage bins. $35,000. Plans deposit $25. Powel & Powell, 501 Thomas Bldg., engrs. CD 5/2.

**N. Y., New York**—B.A. 2/20—Bd. Water Supply, 120 Wall St., Zone 5, designs, construction and installation necessary to establish at Shaft 6 of Delaware Aqueduct, complete with all equip. and appurtenances and ready for use, an electrically-operated or a direct-connected Diesel-operated pumping plant capable of pumping 100 million gals. per day water from the Hudson River into the Delaware Aqueduct against a head of 600 ft. and chlorinating plant capable of satisfactory sterilizing the pumped water before it enters the aqueduct, together with suitable buildings for housing the plants; and for operation of said plants for a period not to exceed 4 months subsequent to their completion, near Chelsea, Town of Wappinger, Dutchess Co. Plans deposit $5.

† **Ind., Indianapolis** — B.A. 2/28 — Veterans Admin., Munitions Bldg., Wash. 25, D. C., addnl. water supply, incl. approx. 200,000 gal. Steel Water Tank and Tower 31; Pump House 32; (approx. 2,200 cu. ft.) plumbing, heating, etc., Veterans Admin. Hospital, Cold Spring Rd., Spec. 5009, Proj. 13-5041.

**Tex., Houston**—Bids Asked—J. S. Norman Co., 4815 Richmond Rd., waterlines off Long Point Rd. $35,000. Hilton & Coulson, 3821 Fannin St., engrs.

### LOW BIDDERS

**Ariz., Phoenix**—City, City Hall, 2 Ave and Washington St. installing water lines in annexed territory, from J. H. Welsh & Sons, Contg. Co., 805 S. Central Ave., **$117,927**. Est. $145,614. CD 11/29/46.

**Calif., Brawley**—City Council, City Hall, Jan. 23, water filter plant modernization, from Fred J. Early, Jr., Co., Inc., 22124 S. Vermont St., Torrance. **$189,765**. Est. $194,000. CD 1/10.

**Calif., Glendale**—City Council, 613 E. Broadway, received no bids Jan. 26, water supply sys. in Edwards Pl., Sleepy Hollow, Stapleton and Valle Vista Drives. **$34,159**. CD 1/16.

**Tex., Waxahachie**—City, City Hall, Jan. 20, Contr. 1, water distr. sys. extens., incl. concrete curb and gutters, concrete surf. pavement, concrete pipe line casing, concrete sidewalks, from W. G. Cullum & Co., Great Natl. Life Bldg., Dallas. **$399,900**. Est. $85,000. CD 1/11.

▲ **Puerto Rico**—Puerto Rico Aqueduct & Sewer Auth., Santurce, Jan. 23, construct gravity concrete dam, power house structure, pumping stations substructure, furnishing tainter gates with electrical equip. and control units, hydraulic turbines, generators and auxiliary equip. and appurtenances, from Sumner S. Sollitt & Co., 307 N. Michigan Ave., Chicago, Ill. **$2,131,600**. CD 11/9.

### CONTRACTS AWARDED

**Kan., Eudora**—City, City Hall, water plant imprvs., well and pump, to Layne-Western Co., 100 W. 39 St., Kansas City, Mo.; addnl. well, filter capacity and reservoir, to Donaldson Constr. Co., Maryville, Mo. Est. **$29,000**. Shockley Eng. Co., Reliance Bldg., Kansan City, Mo., engr.

**La., Lockport**—Town, Town Hall, WW. imprvs., incl. treatment plant and water main exten., to W. D. Owens Constr. Co., 332 First Nat'l. Bank Bldg., Montgomery, Ala. **$100,112**. Bids 1/17, awarded 1/24. CD 1/24, under LB.

**Tenn., Clarksville**—City, WW. incl. Contr. I, furnishing, erecting 500,000 gal. steel elevated water storage tank and tower near intersection of 9 and College Sts., to Chicago Bridge & Iron Co., Lebanon, **$73,850**; Contr. II, concrete fdns. for elevated tank and tower, 2 altitude valves and valve pits, approx. 8,900 lin. ft. 12 in. c.i. transmission and distr. lines, appurtenances, to E. E. Eatherly, Lebanon, **$80,664**. Total est. $200,000. Bids 1/10, awarded 1/18. CD 12/20.

**Tex., Dallas**—Joe J. Dana and B. A. & Hayden Ellis, 4619 Verdun St., c.i. waterlines, own forces. **$33,300**. CD 1/23.

**Tex., Houston**—Pleasantville, Inc., c/o M. A. Silverman, 6110 Almeda Rd., c.i. waterlines, Purchase and Hire. Approx. **$50,000**. CD 1/18.

**Ont., Renfrew**—Town, supply and install water equip. to Francis-Hankin & Co., Ltd., 2028 Union St., Montreal, Que., **$52,562**; filter plant and low lift pump house, to M. J. Sulpher & Sons, Ltd., Renfrew. Approx.. **$135,316**. Bids 1/24. CD 12/30.

## SEWERS, WASTE DISPOSAL

### BIDS ASKED

**N. Y., Blasdell**—B.A. 2/13—Village clk., Village Hall, sewage disposal plant and sewers. $400,000. Plans deposit $50. Nussbaumer & Clarke, 327 Franklin St., Buffalo, engrs.

**Ont., Islington**—B.A. 2/13—S. Eckersley, Etobicoke Twp., 4946 Dundas St., W. Toronto, outfall sewer rein.-con. 1,250 ft. from shore. F. MacArthur, 4946 Dundas St. W., Toronto, engr.

**Ont., Scarborough**—B.A. 2/13—A. W. Farlinger, 2000 Yonge St., Toronto, sewers, manholes, house connections in Sub-division in Pharmacy Ave. $75,000. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs.

**Ont., Toronto**—B.A. 2/13—A. W. Farlinger Real Estate, 2000 Yonge St., install, supply approx. 13,740 ft. 8- to 24-in. sewers, in Fairmount Park Sub-Division Pharmacy Ave.; Scarborough Twp. Approx. $100,000. Proctor, Redfern & Laughlin, 11 Jordan St., engrs.

**Md., Towson**—B.A. 2/14—Comrs. Baltimore Co. Court House, Zone 4, Contr. 148D, storm drains, approx. 3,200 lin. ft. 12-to 33-in. R. C. C. P., 1,070 lin. ft. 24-to 48-in. R. C. C. P. X., 200 cu. yd. Class A concrete, 620 cu. yd. structural excav., etc., near Baltimore. Plans deposit $5, Wm. F. Neale, Court House, ch. engr. CD 1/26/44, under Water Supply.

**Mich., Lansing**—B.A. 2/16—State Hy. Dpt., State Bldg., 1.69 mi. 60 in. storm sewer in Detroit Industrial Expressway, from Outer Dr. northeasterly to Rouge River, SN-J-FAP 82-135, CI (SN-U-FAP 395 (42)), Ecorse Twp., Wayne Co., $190,000. Plans deposit $3.

† **N. M., Las Cruces**—B.A.—2/16—U. S. Eng., Box 1538, Albuquerque, sewage disposal plant, White Sands Proving Grounds (White Sands P. G. Nav-94), Serial No. Eng-29-005-50-30. $85,000. Plans deposit $10. CD 1/10.

**Ala., Prichard**—B.A. 2/20—City, sanitary sewer imprvs. Extended date. Ladd Eng. Co., Ft. Payne, engr. CD 12/30.

**Wis., Thiensville**—B.A. 2/20—Village, sanitary sewerage sys. and sewage treatment plant, $330,000. Plans deposit $30. Bids 12/8 rejected. McMahon Eng. Co., Menasha, engr. CD 12/20, under LB.

**Calif., Los Angeles**—B.A. 2/21—Bd. Supervs. Los Angeles Co., 501 Hall of Records, 2.34 mi. 6 and 8 vitr. clay sanitary sewers in 127 St. C. I. 1282. $50,000. C. E. Arnold, co. engr.

† **Washington**—B.A. 2/21—Bureau Reclamation, Dpt. Interior, Coulee Dam, drainage, sewerage and water distr. sys. for Mason Addn. and commercial area for city of Coulee Dam, Columbia Basin Proj., Spec. R1-CB-45 (Region 1). L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Col., ch. engr

### LOW BIDDERS

**Ariz., Tucson**—Pima Co. Sanitary Dist., West Interceptor Sewer for Dist. 1, from R. H. Martin Contg. Co., Tucson, **$229,131**. Headman, Ferguson & Corollo, 3308 N. Third St., Phoenix, engrs.

▲ **Ill., Chicago**—City, Dpt. Purchases, Contracts & Supplies, City Hall, Jan. 27, auxiliary outlet sewers, Kostner Ave. System, Contr. No. 2-A, from M. J. Boyle & Co., 2480 Elston Ave., **$1,214,490**. CD 1/13.

**Md., Towson**—Baltimore Co., Court House, Jan. 16, Contr. 180-S, approx. 7,000 lin. ft. 5 in. c.i. soil pipe, 3,475 lin. 6 in. VCP-CSP-CSPX-CAP-CIP, 16,162 lin. ft. 8 in. VCPX-CAP-CIP, 30 lin. ft. 10 in. CP, 669 lin. ft. 21 in. VCPX, 1,635 lin. ft. 6 in. CIP Class 150, force main, manholes, drop connections, etc., Lodge Forest Edgemere Sect., from Tibbetts Constr. Co., 200 N. Bentalou St., Baltimore, **$161,635**. CD 1/10.

**Mass., Chelsea**—City, Mayor's office, City Hall, Jan. 23, reconstr. sanitary sewers, Third, Ash and Arlington Sts., from D. F. Pesce., 399 Washington Ave., **$61,745**.

▲ **Mich., Detroit**—Dpt. P. Wks., City Hall, Jan. 31, contr. PW-998-1001, approx. 4.9 mi. sewer under Livernois and Dragoon Ave. and rights-of-way, from Joy Rd. to Detroit River at Fort Wayne, from S. A. Healy Co., 656 E. Seven Mile Rd., and Cargaro Co., Inc., 40 E. Seven Mile Rd., **$5,587,000**. CD 12/20.

**New York**—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, Jan. 30, storm sewer etc. in Beach 49, Beach 54, Beach 56 Sts., Beach Channel Dr., Rockaway Beach Blvd., and Arverne Blvd. and sewer, Horace Harding Blvd., 148 St., Reeves Ave., and 146 St., from Victor Clemente, 115-28 131 St., South Ozone Park, **$322,995** and **$135,582** respectively. CD 1/23.

**O., Cincinnati**—City, City Hall, 9 and Plum Sts., Jan. 24, sewage treatment plant, (Little Miami), sludge beds, filters from General American Transportation Corp., 10 E. 49 St., New York, N. Y., **$56,230**; incinerator and appurtenance equip. from Combustion Engineering-Superheater, Inc., 105 W. Adams St., Chicago, Ill., **$145,085**. CD 1/16.

▲ **Pa., Norristown**—Norristown Boro, Norristown, Jan. 24, Secondary Sewage Treatment Plant addns., alterations, from Progressive Builders, Inc., 315 Market St., Camden, N. J., **$1,080,000**. CD 1/4.

**Tex., Houston**—City, M. H. Westerman, secy., City Hall, 900 Brazos St., Jan. 25, storm sewers, Hermann Park, from John G. Holland Constr. Co., 1602 Old Spanish Trail, **$67,196**. Est. $83,700. CD 1/18.

**Tex., Snyder**—City, Jan. 25, disposal plant and sanitary sewer collection lines, from Wilkes, Dake & Steed, Tyler, **$171,000** and **$199,371** respectively. CD 1/3.

### CONTRACTS AWARDED

**Ariz., Tucson**—Pima Co. Sanitary Bd., Tucson, interceptor sewer, to Mark Cockrill Contg. Co., Inc., 1917 W. Grant St., Phoenix, **$146,145**. Awarded 1/12. CD 1/11, under LB.

**Ariz., Wickenburg**—City, sewer developments, expansion of present sys., tie in to present treatment plant, to King-Hoover Constr. Co., 115 S. 30 St., Phoenix, **$54,373**.

**N. Y., Bear Mountain**—Palisades Interstate Park Comn., Bear Mountain, sewage treatment plant, to Marlboro Constr. Co., Inc., 19 W. 44 St., New York, Zone 18, **$72,500**. Bids 1/19. CD 12/19.

**Tex., Dallas**—Joe J. Danna and B. A. & Hayden Ellis, 4619 Verdun St., sanitary and storm sewers, own forces. Approx. **$55,000**. CD 1/23.

## BRIDGES

### BIDS ASKED

**February 14**
**Iowa**
**February 15**
**Colorado**
**Rhode Island**

**February 16**
**Michigan**
**February 17**
**Illinois**
**February 21**
**Washington**

**Ont., Wilkesport**—B.A. 3/8—R. E. Bradshow, clk. Sombra Twp., Wilkesport, superstructure of Duthill Bridge over north branch of River Sydenham, single span steel truss, 180 ft. center to center of end bearings, substructure and concrete floor; rein.-con. abutments constructed on pile foundations. Approx. $130,000. Plans deposit $10. McCubbin, Brisco & Todgham, Chatham, engrs.

**Puerto Rico**—B.A. 5/15—Insular Dpt. Interior, San Juan, 0.78 kms. bridge over Caguitas River and access road connecting first sect. of La Muda—Caguas Hy. now under constr.; 1.13 kms new bridge at Mayaguez Reformatory School Rd. CD 9/24/45.

**Puerto Rico**—B.A. 5/15—Insular Dpt. Interior, San Juan, 1.92 kms. bridge over Rio Chico, at Patillas. CD 9/24/45.

**Puerto Rico**—B.A. 5/20—Insular Dpt. Interior, San Juan, 0.5 kms. bridge over Boca Cangrejos, San Juan. CD 9/24/45.

**Puerto Rico**—B.A. 6/15—Insular Dpt. Interior, San Juan, 0.76 kms. bridge over Martin Pena channel on South Branch Ave., connecting Ponce de Leon and Fernandez Juncos Aves., San Juan. CD 9/24/45.

### LOW BIDDERS

**California**—State Div Hys., Los Angeles, Jan. 26, rein.-con. box girder bridge for an overcrossing over Hollywood Freeway and outlet ramp at Hill St., Los Angeles Co., from Spencer Webb Co., 4719 Melrose Ave., Los Angeles, **$377,131**. CD 12/29.

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Zone 8, Jan. 31, Contr. 2, furnishing, placing, compacting various graded borrow excav. materials in embankments, stabilizing existing ground by use of vertical sand drains, excavating portions embankment placed as overload and depositing materials so excavated on embankment to excavating ditches for mosquito control, etc. in constr. of turnpike from north abutment proposed Passaic River structure to south abutment proposed Hackensack River structure, Kearny, Hudson Co., from George M. Brewster & Sons, 275 W. Fort Lee Rd., Bogota, **$1,884,050*****Contr. 5, constr. two river piers, foundations fenders, etc., in connection with constr. of Passaic River Bridge, Newark and Harrison, Essex and Hudson Counties, from Underpinning & Foundation Co., 155 E. 44 St., New York, N. Y., **$680,285*****Contr. 6, constr. four river piers and two fenders in connection with constr. of turnpike across Hackensack River, Laurel Hill, Hudson Co., from R. B. Jaggard Eng. Co., Westmont, **$1,266,910**. CD 1/13.

**Pennsylvania**—State Hy. Dpt., Harrisburg, Jan. 27, I-beam bridge over Little Swatara Creek north of Lebanon-Berks Co. line, surf. 0.32 mi. Rural Route 06023, in Tulpehocken and Bethel Twps., Berks Co. from Herman W. Riebe trading as Charles Rilebe, Lansford, **$60,141**. CD 1/11.

**Pa., Phila.**—Dpt. P. Wks., City Hall Annex, Jan. 23, Tabor Ave. Bridge, from Kaufman Constr. Co., 4000 Pulaski Ave. **$352,586**. CD 1/12.

### CONTRACTS AWARDED

**Arkansas**—State Hy. Dpt., Little Rock, concrete bridge and remodeling 3 bridges, Melbourne, Izard Co., to Forsgren Bros., 500 S. 5 St., Ft. Smith, **$59,814**. Bids 1/27. CD 1/18.

**Kan., Topeka**—City, City Hall, bridge over Shunganunga Creek, to Bennett Constr. Co., 119 Polk St., Topeka, **$76,811**. Bids 1/17. W. E. Baldry, city engr. CD 11/16.

**Tex., Palestine**—Missouri Pacific R.R. Co., R. P. Hart, ch. engr., Missouri Pacific Bldg., St. Louis 3, Mo., underpass, Reagan St. Owner builds. **$70,000**. CD 7/12.

**New Brunswick**—Province of New Brunswick, Dpt. P. Wks., Fredericton, fabrication, erection steel superstructure 4 steel span 282 ft. each, one span 194 ft. and two steel plate girder spans 82 ft. each Northwest Miramichi Hy. Bridge, Newcastle, to Saint John Dry Dock Co., Ltd., Saint John, **$400,000**. Bids 12/9. CD 11/10.

## STREETS AND ROADS

### BIDS ASKED

STATE HIGHWAY LETTINGS

| | |
|---|---|
| February 14 | February 17 |
| Iowa | Illinois |
| Rhode Island | Kansas |
| February 15 | Pennsylvania |
| Colorado | February 23 |
| February 16 | California |
| Michigan | February 24 |
| | Pennsylvania |

**Puerto Rico**—B.A. 4/15—Insular Dpt. Interior, San Juan, 6.36 kms. principal highways, La Muda-Gaguas; 2.65 kms. Rio Piedras Carolina major thoroughfares from intersection of Carpenter Rd. to new sect. recently constructed; 2.43 kms. paving Roosevelt Ave. and construct new bridge; 1.07 kms. South Branch Ave., sect. Roosevelt Ave. to Munoz Marin Ave., Rio Piedras. CD 9/24/45 .

† **Tennessee** — B.A. 2/24 — Bureau Pub. Roads, Dpt. Commerce, Gatlinburg.

**Sevier and Blount Counties**—b. conc. 9.767 mi. Proj. 3A8-B10, Great Smoky Mountains National Park. Plans deposit $10.

† **Alaska**—B.A. 2/28—Alaska Road Comn., Juneau, paving 3 mi. Lake Spenard road near Anchorage, $140,000; imprv., paving 5 mi. Steese Hy from Fairbanks to Noyes Slough Bridge, $225,000. CD 12/19.

**Calif., Los Angeles**—B.A. 3/1—City Council, City Hall, imprv. Paseo Del Mar at Gaffey St and Weymouth Ave., $50,000. Lloyd Aldrich, city engr. CD 9/19/45.

**Puerto Rica**—B.A. 4/15—Insular Dpt. Interior, San Juan, 5.24 kms. Rio Piedras-Carolina, major thoroughfare, from end of project recently constructed to Carolina. CD 9/24/45.

**Puerto Rico**—B.A. 4/30—Insular Dpt. Interior, San Juan, 0.97 kms. South Branch Ave. sect Roosevelt Ave. to Martin Pena, Hato Rey. CD 9/24/45.

**Puerto Rico**—B.A. 5/25—Insular Dpt. Interior, San Juan, 0.16 kms. Guayabota Rd. CD 9/24/45.

### LOW BIDDERS

**Arizona**—State Hy. Dpt., Pheonix imprv. 13¾ mi. Safford-Clifton Hy., Graham Co., from W. R. Skousen, Mesa, $192,770 bit. road mix. 14-1/3 mi. St. Johns-Sanders Hy., Apache Co., from Packard Contg. Co., Luhrs Tower, Phoenix, **$205,731.**

**Ariz., Phoenix**—City, City Hall, 2 Ave. and Washington St., bit. surf., roll curbs, c. conc. in Westland Homesites, from R. C. Tanner & Sons, Heuser & Garrett, 731 N. 19 Ave., **$127,154.** Est. $173,984.

**California**—State Di. Hys., Los Angeles, Jan. 26, plant mix on untreated rock and wid'n. on existing pavement 5.5 mi. between south city limits of Newport Beach and Myrtle Ave. in Laguna Beach, Orange Co., from Hensler Constr. Corp., 816 Allen Ave., Glendale. **$345,505.** CD 12/29.

▲ **Georgia**—State Hy. Dpt., Atlanta, Jan. 27, from E. H. Hines Constr. Co., Inc., Greenwood, S. C., paving, 2 double bridges, 3.54 mi. at Pumpkin Vine Creek and 2 bridges at N. C. and St. L. R. R. on Marietta-Cartersville Rd. beginning approx. 1300 ft. south of Cobb-Bartow Co. line and ending in Emerson FI-484 (3) CT 1 and CT 2, Cobb and Bartow Counties, **$699,297** and **$320,040** respectively; grading, paving 7.09 mi. Norcross-Cumming Rd., State Rt. 141 beginning at State Rt. 9 approx. 3.5 mi. south of Cumming and ending at Fulton Co. line, S-0864 (1), Forsyth Co:. **$108,379*****from Ocmulgee Constr. Co., McRae, grading, surf. 2 bridges 7.144 mi Lumber City-Jacksonville, Ga. Rv. State Rd. 117 beginning at end of present paving near Lumber city and extend. toward Jacksonville, S-0573 (1), Telefair Co., **$82,890;** grading, paving 5.474 mi. Knoxville-Bryon Rd., State Rt. 42 beginning at end of present paving approx. 2 mi. east of Knoxville and exten. toward Bryon, S-1254 (1), Crawford Co., $54,295; grading, paving 9.406 mi. Ashburn-Rebecca Rd., State Rt. 112, beginning at Gordon St. in Ashburn and extend. toward Rebecca, S-1574 (1), Turner Co., **$98,058*****from W. T. Ledbetter Co., Rome, grading, paving 4.187 mi. Preston-Ellaville Rd., State Rts. 41 and 153 beginning at State Rt. 27 in Preston and exten. toward Ellaville, S-0532 (1) and S-1169 (1), Webster Co., **$48,138*****from Hugh Steele Constr. Co., Centre, Ala., grading, paving 8.489 mi. Byromville-Unadilla Rd., State Rt. 230 beginning in Bryomville at end of present paving and exten. to end of present pavement west of Unadilla, S-0678 (1), Dooly Co., **$89,682** ***from W. L. Robinson Constr. Co., College Park, grading, paving 7.131 mi. Douglasville-Whitesburg Rd. State Rt. 5 beginning at State Rt. 8 in Douglasville and exten. toward Whitesburg, S-0844 (1), Douglas Co., **$118,310*****from Vandigriff Constr. Co., 4708 N. Court St., Montgomery, Ala., grading, paving 11,122 mi. Franklin-Roanoke, Ala. Rd. State Rt. 34, beginning at junction with Station Rt. 100, north of Franklin and ending at Ga-Ala State line S-0736 (1), Heard Co., **$178,254.** CD 1/19.

**Kentucky**—State Hy. Dpt., Frankfort, rejected bids Jan. 13, Class 1 mix, bit. surf. 5.361 mi. S. P. Group 3 (1950), Jefferson Co., LB **$91,368.** CD 1/23, under LB.

**Louisiana**—State Dpt. Hy., Baton Rouge, Jan. 25, shell base course, three-application bit. surf. tr. 2 mi. Lafitte-Marrero Hy. State Rte. 30, S. P. 249-02-22, Jefferson Parish, from Pierson Constr. Co., Louisiana Nat'l Bank Bldg., Baton Rouge, **$59,298.** CD 1/4.

**Md., Hyattsville**—Washington Suburban Sanitary Comn., 4017 Hamilton St., Contr. 626, repaving roadways and sidewalks, incil. approx. 10,700 sq. yd. road paving; 8,000 lb. steel and wire mesh; 4,000 sq. ft concrete

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sidewalk, 700 lin. ft. concrete curb and gutter, from F. O. Day, 7729 Old Georgetown Rd., Bethesda, **$79,770.**

**N. M., Clovis**—City, Jan. 24, 75 blucks street paving, curbs and gutters, from Allison & Haney, Albuquerque. **$322,376.** CD 12/20.

▲ **Pennsylvania**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, Jan. 31, grading, drainage, paving, structures, 3.97 mi. Turnpike Sec. 29D, Western Exten. from point approx 650 ft. east of the Centerline of Beaver River easterly 21,002 ft. to point approx. 2,077 ft. west of Township Rd. 609, N. Sewickley Twp., and grading drainage, paving, structures, approx. 5.22 mi. Sect. 29E Western Exten. of Pennsylvania Turnpike from point approx. 2,077 ft. west of Twp. Rd. 609, North Sewickley Twp. in an easterly direction 27,547 ft. to point approx. 351 ft. west of L. R. 04011, (T. R. 989), both Beaver Co., structures, grading, drainage, paving approx. 3.85 mi. Sec. 30 A, Western Exten. Pennsylvania Turnpike, from point approx. 351 ft. west of L. R. 04011 (T. R. 989) in New Sewickley Twp., Beaver Co., easterly 20,317 ft. to point approx. 3,000 ft. west of L. R. 10002, Cranberry Twp., Butler Co., Beaver and Butler Counties, and grading, drainage, paving, structures approx. 2.44 mi. Turnpike Sec. 30 B, Western exten. of Pennsylvania Turnpike from point approx. 3,000 ft. west of L. R. 10002 in Cranberry Twp., easterly 12,903 ft. to point at Butler-Allegheny Co. line in Cranberry Twp., Butler Co., from L. G. De Felice & Son, Nettleton Ave., North Haven, Conn., **$7,108,419.** CD 1/11.

▲ **Pennsylvania**—State Hy. Dpt., Harrisburg, Jan. 27, surf., 3.54 mi. two-lane hy. from near Butler City northeast and southeast on T. R. 356 in East Butler Boro, Summit and Butler Twps., incl. 60 ft. I-beam bridge over Bonny Brook, Butler Co., from The Ray F. Yount Co., Inc., Box 101, Kittanning, **$208,717*****wid'n. 4.16 mi. U. S., 202 and macad. and concrete., surf., in Chalfont, New Britain and Doylestown Boros, Doylestown Twp., exten. bridge over Cooks Run, Bucks Co., from J. D. Eckman, Box 176, Atglen, **$396,906,** CD 1/11***construct 4.05 mi. three and four-lane Hy. U. S. 122 and T. R. 83, in North Manheim Twp., Schuylkill Haven, Mount Carbon, Palo Alto and Cressona Boros, city of Pottsville, incl. constructing highway underpass under Pennsylvania R. R. and an overpass over Reading R. R., one I-beam bridge over Tumbling Run and three I-beam bridges over Schuylkill River, Schuylkill Co., from J. Robert Bazley, Inc., P. O. Box 117, Pottsville, **$2,444,300.** CD 1/4.

**Texas**—State Hy. Comn., Austin, cancelled bids to have been opened Feb. 14, flexible base, one course surf. tr. 8.228 mi. Hy. FM 605, S.493 (2). CD 1/26.

**Tex., Houston**—City, City Hall, 900 Brazos St., Jan. 25, asph. paving Center St., from Russ Mitchell, Inc., 5304 Old Spanish Trail. **$115,256.** L. Fugate, city engr. CD 5/24.

**Tex., Jordanton**—Atascosa Co., Matt Davis, judge, 17 mi. asph. paved roads in Road Dist. 2, (exclusive of base course) from Schwope Bros., 6633 W. Commerce St., San Antonio, **$104,075.** Est. $225,000.

**Tex., Port Arthur**—City, Jan. 18, asph. paving Thomas Blvd. from Noonan Constr. Co., 11 and Hollywood Sts., Beaumont. **$146,179.** CD 8/16.

### CONTRACTS AWARDED

**Arizona**—State Hy. Dpt., Phoenix grading, draining, alignment 3 mi. Phoenix-Rock Springs (Black Canyon) Hy., Maricopa Co., to Vinnell Co., Inc., 1919 E. Grant St., Phoenix, **$238,870.** Bids 1/13, awarded 1/14.

▲ **Arkansas**—State Hy. Dpt., Little Rock, Van Buren City Connection, Crawford Co., to Aucher Constr. Co., Muskogee, Okla., **$79,744*****road constr. 9.9 mi. Hot Springs, Garland Co., to D. B. Hill Constr. Co., 115 N. Spring St., Little Rock **$228,299*****road work 10 mi. Hy. 15, Pine Bluff, Jefferson Co., to Buc Ton Constr. Co., Hazen, **$207,163*****road constr. 8.4 mi. Ravenden, Lawrence Co., to Campbell Constr. Co., Wallace Bldg., Little Rock, **$269,185*****road constr. 11.4 mi. Waldenburg, Poinsett Co., to Mississippi Valley Constr. Co., Paragould, **$196,829*****road constr. and 5 bridges, Cherry Hill, Polk and Mountgomery Counties, to E. E. Barber Constr. Co., 722 Wheeler St., Ft. Smith, **$137,855*****road constr. 3.9 mi. Little Rock, Pulaski Co., to D. F. Jones Constr. Co., Southern National Bldg., Little Rock, **$67,438*****road constr. 2.2 mi. Williford connection, Williford, Sharp Co., to Ben M. Hogan Co., 100 Fairview St., Little Rock, **$54,364.** Grand total $1,240,877 Bids 1/27. CD 1/9.

**Kansas**—Stat Hy. Comn., Emporia, grading, 6.229 mi. Proj. 50S-56 FI 608 (4), Lyon Co., to Clarkson Constr. Co., 114 W. 11 St., Kansas City, Mo. **$259,152.** Bids 1/20. CD 1/5.

**Kan., Topeka**—City, City Hall, paving 21 St., to M. M. Small, 1619 W. 2 St., $57,026. Bids 1/17, W. E. Baldry, city engr.

**New Mexico**—State Hy. Dpt., Santa Fe, levelling course, asph. processed base, bit. top course surf., etc. 6.981 mi. U. S. 85 between Raton and Springer, FAP No. FI-1 (18), Colfax Co., to W. T. Bookout Constr. Co., Box 298, Las Vegas, **$496,229*****grading, 243.73 ft. concrete, steel bridge, levelling course, ballast, asph. processed base, bit. top course surf., etc. 3.059 mi. U. S. 85 and alternate U. S. 85 in city of Las Vegas, FAP No. UI-152 (5) and F-188 (3), San Miguel Co., to Fulton & Hamilton Const. Co., P. O. Box 69, Roswell, **$295,949.** Bids 1/27. CD 1/18.

**Pennsylvania**—State Hy. Dpt., Harrisburg, c. conc. paving constructing 2 rein.-con. structures, exten. structure and c. conc. wid'n. left and right of existing pavement 21,761 ft. L. R. 36 (3-C); 35 (4) T. R. U. S. 11, from point in Chambersburg Boro south, Franklin Co., to E. D. Plummer & Sons, Chambersburg, **$617,221.** Bids 12/9, awarded 1/30. CD 12/14, under LB

**Tex., Dallas**—Joe J. Danna and B. A. & Hayden Ellis, 4619 Verdun St., street constr., asph. paving, own forces. **$57,775.** CD 1/23.

**Tex., Houston**—Pleasantville, Inc., c/o M. A. Silverman, 6110 Almeda Rd., street constr., paving, Purchase and Hire. Approx. **$70,000.** CD 1/18.

**Wyoming**—State Hy. Comn., Cheyenne, grading, draining, 3 continuous girder span 58 ft., 71 ft., 58 ft. over Green River and misc. work 1.7 mi. Big Piney-East Rd., S 73 (1), Sublette Co., to Charles M. Smith, P.O. Box 508, Thermopolis. **$113,918.** Est. $126,099. Bids 1/27. CD 1/18.

**Alberta**—Dpt. P. Wks., Edmonton, supplying grav. stockpiling on Hy. 13 from Wetaskiwin to Camrose, to Standard Gravel & Surfacing Co., Ltd., 5340 First St. W., Edmonton. Approx. **$152,305.** CD 2/26/47.

**Ont., Brantford**—Brant Co., Brantford, road reconstr., day labor. **$60,000.** R. M. Lee, County Bldg., co. engr. CD 3/5/47.

**Ont., Windsor**—Essex County Council, County Bldgs., paving, road work, own forces, under supervision of R. W. Knister, county rd. supt. **$395,000.** CD 1/31/44.

## EARTHWORK, WATERWAYS

### BIDS ASKED

† **Kansas**—B.A. 2/14—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., clearing Bonny reservoir site, St. Francis Unit, Missouri River Basin Proj., near St. Francis, Spec. R7-105 (Region 7), L. N. McClellan, c/o owner, ch. engr. CD 5/25/44.

**Massachusetts**—B.A, 2/14—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, (flood project) removal trees, stumps and debris, Houstanic River, Pittsfield, Longmeadow, P. H. Kitfield, ch. engr.

† **New York**—B.A. 2/14—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., access road paving, Almond Dam, Canacadea Creek, Serial No. CIVENG-18-020-50-18. CD 1/10.

† **Arkansas**—B.A. 2/15—U.S.Eng., 300 Broadway, Little Rock, constr. about 850 lin. ft. pile dikes with rock fill, about 5,550 lin. ft. revetment, Arkansas River Watershed, Arkansas River, approx. 4 mi. downstream from Dardanelle, Serial No. CIVENG 03-050-50-65. CD 12/24/43.

† **Florida**—B.A. 2/15—U.S. Eng., P.O. Box 4970, Jacksonville, wid'n. Ybor Channel, 524,000 cu. yd. excav. Tampa Harbor, CIVENG 08-123-50-43 CD 6/9/44.

† **Illinois**—B.A. 2/15—U. S. Eng., 520 Merchandise Mart, Chicago, Zone 54, constr. Farm Creek Spillway Channel Imprvt. East Peoria, Inv. No. CIVENG-11-032-50-25.

† **Louisiana**—B.A. 2/15—U.S. Eng., foot of Prytania St., New Orleans, Zone 9, approx. 1,250 lin. ft. pile dikes, located on and adjacent to right descending bank of Red River Mile 92.9 (1938), in Avoyelles Parish, about 1 mi. northeast of Echo, Item D-93, 9-R, CIVENG 16-047-50-197, Extended date CD 1/10.

† **Louisiana**—B.A. 2/15—U.S. Eng., foot of Prytania St., New Orleans, Zone 9, approx. 1,650 lin. ft pile dike constr., located on and adjacent to right descending bank of Red River, Avoyelles Parish, about 2 mi. east of Echo, central to approx. Mile 92.1 (1938), CIVENG 16-047-50-209 CD 6/26/46.

† **Washington**—B.A. 2/15—U. S. Eng., 4735 E Marginal Way, Seattle, Zone 4, completion administrative bldg. and recreational facilities at Mud Mountain Dam, incl. 41x128 ft. office shop and warehouse, 25x96 ft. garage, 25x37 ft. service bldg., Enumclaw, CIVENG-451-07-50-32. $116,785. Bids 1/5 rejected, L. B. **$146,036.** CD 12/28.

**N. B., St. Mary's**—B.A. 2/15—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater, Approx. $150,000. R. Blais, c/o owner, engr.

**P. E. I., Tracadie Harbor**—B.A. 2/15—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater reconstr.. Approx. $50,000. Plans deposit $20 R. Blais, c/o owner, engr.

† **Illinois**—B.A. About 2/16—U.S. Eng., 808 U.S Court House and Custom House, St. Louis 1, Mo., enlarging approx. 6,800 lin. ft. earthen levees, Clear Creek Drainage and Levee Dist., Union Co., located on west bank of Clear Creek, about 2 mi. east of Ware, opposite approx. Mississippi River Miles 63 to 64 above the mouth of Ohio River.

† **Arkansas**—B.A. 2/16—U. S. Eng., 300 Broadway, Little Rock, Lot VI, false beams, underseepage controls and drainage structures, Crawford County Levee Dist., Van Buren, Crawford Co., CIVENG-03-050-50-63. CD 3/9/45.

† **Colorado**—B.A. 2/16—Bureau Reclamation, Dpt Interior, Paonia, earthwork, structures for enlargement of Fire Mountain Canal, Station 340 plus 00 to Station 686 plus 00, exten. from point 2 mi. southwest of Bowie, Colo. to point 1¼ mi. west of Paonia, Paonia Proj., Spec. 2909. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr. CD 9/12/44.

† **Illinois**—B.A. 2/16—U. S. Eng., 808 U. S. Court House & Custom House, St. Louis 1, Mo., proposed imprvs. to Levees Clear Creek Drainage and Levee District on west bank of Clear Creek in Union Co., about 2 mi. east of Ware and opposite approx. Mississippi River miles 63 to 64 above the month of Onio River, Inv. No. CIVENG-23-065-50-71. Extended date. CD 12/9.

† **Kentucky**—B.A. 2/16—U. S. Eng., Madison Ave. and 8 St. W., Huntington 18, W. Va, local protection

project Sect. 2, along left descending bank of Ohio River, in Ashland, Boyd Co., CIVENG-46-022-50-64. CD 12/30.

† **Kentucky**—B.A. 2/16—U. S. Eng., P. O. Box 59, Louisville, furnishing, del. sluice gates, accessories for flood protection works. Louisville and Covington, CIVENG. 15-029-50-57.

† **North Dakota**—B.A. 2/16—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., swimming bleachers at Homme Reservoir, Park River, approx. 3 mi. west of Park River, CIVENG-21-018-50-38. CD 1/26.

† **Texas**—B.A. 2/16—U. S. Eng., 606 Sante Fe Bldg., Galveston, constr. outlet works, Belton Dam on Leon River, Belton, Inv. CIVENG-41-253-50-139. Approx. $2,250,000. Extended date. CD 1/5.

**Tex., Fort Worth**—AIRPORT—B.A. 2/16—City, W. O. Jones, mgr., City Hall, Contr. 3, turfing to prevent erosion, at Greater International Airport. $40,000. Wyatt C. Hedrick, 1005 First Natl.-Bank Bldg., engr. CD 9/16/48.

† **Arkansas**—B.A. 2/17—U. S. Eng., 300 Broadway, Little Rock, 460,000 cu. yd. excav. to form cut-off channel 1 mi. long on Arkansas River clear area on each side 500 ft., Perry, Perry Co., CIVENG-03-050-50-61. CD 12/24/43.

† **Florida**—B.A. 2/17—U. S. Eng., P. O. Box 4970, Jacksonville dredging Entrance Channel, basin and portion of brage canal, Canaveral Harbor, Inv. No. CIVENG-08-123-50-64. CD 6/9/44.

† **Illinois**—B.A. 2/17—U.S. Eng., U.S. Court House and Custom House, St. Louis 1, Mo., constr. levees Columbia Drainage and Levee Dist., Proj. Item IV-D, Monroe Co., Inv. No. CIVENG 23-065-50-70. CD 12/6.

† **Missouri**—B.A. 2/17—U. S. Eng., 601 Davidson Bldg., Kansas City, Zone 8, Mo., seeding of Levee Unit 488L along left bank of Missouri River in Hope Co., near Forbes, CIVENG-23-028-50-87. CD 1/23.

† **Oklahoma**—B.A. 2/17—U. S. Eng., P. O. Box 61, Tulsa, Zone 2, completing embankment, Tenkiller Ferry Dam, Illinois River, Inv. No. CIVENG-34-066-50-97.

† **Oregon**—B.A. 2/17—U. S. Eng., 628 Pittock Block, Portland, Zone 5, clearing Areas D and E in reservoir area above Detroit Damsite, approx. 15 mi. east of Mill City, starting approx. at the confluence of Blowout Creek and the North Santiam River and exten. eastward to point approx. 3½ mi. upstream from dam axis in portions of Sects. 16 and 21, T 108,R5E W.M, Marion Co., Serial No. CIVENG-35-026-50-219.

† **Illinois**—B. A.—2/20—U. S. Eng., Clock Tower Bldg., Rock Island, constr. Upper approach dike transition section, Lock and Dam 17, Mississippi River on left bank of river about 4 mi. upstream from New Boston, incl. 5,400 cu. yd. embankment fill, 660 cu. yd. embankment protection rip rap and 1100 cu. yd. crushed rock, 10,040 sq. ft. steel sheet piling, 62,000 lb. structural steel and 21,500 lb. steel forgings, small quantity of concrete, reinforcing steel and handrailings, Mercer Co. CD 4/27/44.

**Minn., Gaylord**—B.A. 2/20—Sibley Co., W. C. Oldenburg, aud., constr. Co. Ditch. 44; 6.5 mi. open ditch, 170,647 cu. yd. excav.; furnish, install 72 ft. type B, 12-gage multiplates and arches; 492 ft. 36-to 73-in. culverts; relay 60 ft. 36 in. culverts; furnish, install 8,000 ft. 10-to 16-in. drain tile; $35,562. E. L. Chamberlain, Olivia, engr.

† **California**—B.A. 2/21—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Delano, McFarland and Linsey, Calif., 15 traveling water screens for Friant-Kern Canal Distr. System, Central Vlley Proj., Spec. 2896. L. N. McClellan, ch. engr.

**Mississippi**—B.A. 2/21—U. S. Eng., P. O. Box 60, Vicksburg, constr. Enid Dam Outlet Structures and Embankment Closure Sections on Yocona River in Yalobusha Co., approx. 3 mi. north of Enid, and 0.8 mi. east of Hy. 51, CIVENG-22-052-50-103.

† **Oregon**—B.A. 2/21—U. S. Eng., 19 E Poplar St., Walla Walla, Wash., channel and levee along Walla Walla River, Milton-Freewater project, in vicinity of Milton, CIVENG-45-164-50-85.

† **Arkansas**—B.A. 2/23—U. S. Eng., 300 Broadway, Little Rock, furnish generator leads, potential transformer, surge protective equip., main generator, breaker equip., neutral breakers, f.o.b. cars Cotter, for Bull Shoals Dam, CIVENG-03-050-50-59.

▲† **California—B.A. 2/28**—U. S. Eng., 751 S. Figueroa St., Los Angeles, flood control basin, spillway and east embankment Whittier Narrows, El Monte, Los Angeles Co., CIVENG-04-343-50-27. $2,000,000-$5,000,000. CD 1/25/45.

### LOW BIDDERS

† **Arkansas**—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., cancelled bids to have been opened Feb. 7, placing approx. 630,000 cu. yd. earthwork in lower St. Francis Levee Dist., Crittenden Co., Inv. SERIAL No. CIVENG-40-041-50-93. CD 1/13.

† **California**—Bureau Reclamation, Dpt. Interior, Friant, Jan. 24, earthwork, pipe lines, structures for Lateral 88.4 W, Station 0 plus 00 to 120 plus 58 and lateral 90.4 W, Station 9 plus 00 to 44 plus 67, Lindmore Irrigation District Friant Kern Canal Distribution System, Central Valley Lindsay Proj., Spec. 2886, from Concrete Conduit Co., 899 LaCadena Ave., Colton, **$263,917**, Est. $346.251. CD 1/5.

† **California**—U. S. Eng., Wright Bldg., Sacramento, Jan. 24, dredging Sacramento River at junction of Cache and Steamboat Sloughs, near Rio Vista, Spec. 1430, Solano Co., from San Francisco Bridge Co., 503 Market St., San Francisco, **$249,418**. CD 1/16.

† **Illinois**—U. S. Eng., 808 U. S. Court House and Custom House, St. Louis 1, Mo., constr. levees, East St. Louis and vicinity (East Side Levee and Sanitary Dist.) Proj. Item I-D (2), St. Clair Co., Inv. No. CIVENG-23-065-50-62, from William J. Holdoway, 722 Chestnut St., St. Louis 1, Mo., **$81,281**. CD 1/10.

† **Louisiana**—U.S. Eng., foot of Prytania St., New Orleans, Zone 9, Jan. 27, approx. 160,000 cu. yd. uncompacted earthwork, Lake Pontchartrain Levees, New Orleans Dist., Jefferson Parish, CIVENG 16-047-50-194, from Walter P. Villere, 1100 C. Claiborne Ave., New Orleans, **$68,608**. CD 1/10.

† **New Jersey**—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., rejected bids Sept. 22, dredging in entrance channel at Barneget Inlet, CIVENG-36-109-50-12, L. B. **$122,200.** Will readvertise. CD 9/28, under LB.

† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Jan. 26, reservoir clearing (initial contract) Whitney Dam on Brazos River, Hill Co., Inv. No. CIVENG-41-243-50-145, from Valentine & Littleton, 1523 Holdem St., Newport, Ark., **$79,600**. Est. $40,000. CD 1/4.

### CONTRACTS AWARDED

▲† **Colorado**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., earthwork, concrete lining and structures for 5 mi. Poudre Supply Canal Station 18 plus 51.06 to 294 plus 00, Colorado-Big Thompson Proj., Spec. 2855, to Peter Kiewit Sons' Co., 1950 University St., Denver, **1,216,699**. Bids 1/10, awarded 1/24. CD 1/17, under LB.

**Kan., Great Bend**—Kansas Forestry, Fish & Game Comm., Pratt, Walnut Creek Diversion Dam, near here, to Western Eng. Co., Harlan Ia., **$186,523**, Bids 1/19, Wilson & Co., Box 937, Salina, engrs.

† **Missouri**—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., placing approx. 500,000 cu. yd. earthwork in Little River Drainage Dist., in vicinity of Delta, Cape Girardeau Co., CIVENG 40-041-50-79, to Forcum-James Co., Dyersburg, Tenn., **$118,000**. Bids 1/12. CD 12/12.

**Tex., Houston**—Pleasantville, Inc., c/o M. A. Silverman, 6110 Almeda Rd., site grading, drainage, Purchase and Hire. Approx. **$50,000**. CD 1/18.

† **Wyoming**—Bureau Reclamation, Dpt. Interior, Riverton, furnishing, applying buried aphlaltic membrane lining between Station 883 plus 00 and 1606 plus 00 of Wyoming Canal, Pavillion, Riverton Proj., Spec. 2890, to Sharrock & Pursel, Casper, **$48,850**. Est. $61,630. Bids 1/19, awarded 1/25. CD 1/5.

## AIRPORTS

### BIDS ASKED

† **N. Y., Brooklyn**—AIRPORT—B.A. 2/14—Pub. Wks. Office, Third Naval Dist., 50 Church St., New York, Zone 7, resealing of joints in pavement, Naval Air Station, Floyd Bennett Field, Spec. No. 23324. Plans deposit $10.

† **Calif., Point Mugu**—INSTRUMENTATION BLDG.—B.A. 2/23—Yards & Docks Annex, Navy Dpt., Arlington, Va., 1 story, 100x260 ft., instrumentation bldg. with 5 story, 22x44 ft. tower, Spec. 23462, at Naval Air Missile Test Center. CD 7/23/48.

### LOW BIDDERS

† **Calif., Muroc**—SERVICE BLDGS.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Jan. 26, service bldgs. at rocket engine test station, Eng. 04-343-50-11, from J. Walter Johnson, 5205 Hollywood Blvd., Los Angeles, **$197,031**, Est. $250,000.

† **Calif., Muroc**—TEST STRUCTURES—U. S. Eng., 751 S. Figueroa St., Los Angeles, Jan. 24, test structures and appurtenances at Rocket Engine Test Station, Muroc Air Force Base, Eng 04-343-50-10, from Vinnell Co., Inc., 1145 Westminister Ave., Alhambra, **$984,263**.

### CONTRACTS AWARDED

▲ **Calif., San Francisco**—RUNWAYS, etc.—Public Utilities Comn., City Hall, paving runways, grading, etc. at San Francisco Airport, near San Bruno, Spec. 120, to Morrison-Knudsen Co., Inc., 1 Montgomery St. **$2,595,053**. Bids 1/10. CD 1/17, under B.

**Kan., Wichita**—AIRPORT IMPRVS.—Boeing Airplane Co., Municipal Airport, airport imprvs., Schedules A and B, to Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., Omaha, Neb. **$879,242**. Est. $1,272,576. Bids 12/15. CD 1/25, under L.B.

## AMERICANS ABROAD

▲ **Africa, Liberia**—Liberia Mining Co. Ltd., 70 Pine St., New York 5, New York, U.S.A., railroad running 45 mi. from Monrovia to iron deposits in Bomi Hills and developing mines. Owner builds with local labor under supervision of company engineers. **$8,000,000**.

## LATIN AMERICA

**Brazil, Rio de Janiero**—Secy. General Ministry of Pub. Wks., Ave. Nilo Pacanha 12, receiving bids February 24, removing San Antonio Hill, dumping material along shore line to make highway speed highway, erecting 2 mi elevated concrete highway, constructing apartment and office bldgs.; parks and underground garages. CD 1/17.

**British Guiana, Corentyne**—Government of British Guiana, Georgetown, will construct irrigation scheme, Boerasirie-Bonasika, drainage and irrigation Corentyne, by day labor. **$700,000**. Directorate of Pub. Wks., Georgetown, engr. CD 2/28/49.

## PUBLIC BUILDINGS

### BIDS ASKED

**N. C., Greenville**—HEALTH and PHYSICAL EDUCATION—B.A. After 2/1—East Carolina Teachers College, F. D. Duncan, bus. mgr., Greenville, 2 story, 1,022,371 cu. ft. health and physical educ. bldg., incl. 17,650 cu. ft in pipe tunnel. Plans deposit $50. $25 each for plumbing, heating, electrical work. Eric G. Glannaghan, Henderson, archt. CD 11/28/45.

**Ark., Newport**—SCHOOL—B.A. 2/14—Bd. Trustees, Newport Special School Dist., W. W. Baker, supt. Schools, Newport, 1 story, rein.-con., frame, brick tile Junior High School, and 1 story, balcony, 96x118 ft. gymnasium. Plans deposit $25. Extended date. Herbert Voelcker, 1202 Dennis St., Houston, 4, Tex., archt. CD 12/16.

**Conn., Meriden**—SCHOOL—B.A. 2/14—City, J. D. Shaw, chn. School Bldg. Comn., Meriden, brick, steel school, Markham Pl. and Parker Ave. $375,000. Plans deposit $50. Extended date. Keith Sellers Heine, 71 Oxford St., Hartford, archts. CD 1/11.

**Ga., Decatur**—SCHOOL—B.A. 2/14—DeKalb County Bd. Educ., Decatur, Oglethorpe-Brookhaven School. Greyson & Ellis, Mortgage Guarantee Bldg., Atlanta, archts. CD 7/29/46.

**Ill., Glenview**—SCHOOL—B.A. 2/14—School Dist. 34, 1 story, brick Westbrook School. $350,000. Perkins & Will, 309 W. Jackson St., Chicago, Zone 6, archts. CD 11/18.

**Kan., Norton**—EMPLOYEES—B.A. 2/14—State Bd. Regents, Topeka, employees bldg., State Sanitarium for Tuberculosis. **$325,000**. C. L. Marshall, Topeka, state archt. CD 10/28.

**Minn., Minneapolis**—ACCELERATOR—B.A. 2/14—University of Minn., R. S. Callaway, purch. agt., 323 Admin. Bldg., Main Campus, 1 story, 42x170 ft. linear accelerator bldg., on Main Campus. $120,000. Plans deposit $25. C. H. Johnston, 715 Empire Bank Bldg., St. Paul, archt. CD 10/29/47.

† **N. Y., Brooklyn** — FOUNDATIONS — B.A. 2/14 — Officer in Charge of Construction, Bldg. 77, New York Naval Shipyard, fdns. for 4 boring mills in Bldg. 128 at Naval Shipyard. Spec. No. 23695. Plans deposit $10.

**N. Y., New York** — HOUSING STREET and YARD IMPRVS.—B.A. 2/14—New York City Housing Auth., 63 Park Row, Zone 7, street and yard imprvs. for Parkside Houses Proj. No. NYC-17, bounded by Adee Ave., White Plains Rd., Arnow Ave. Bronx Park East, but excluding an area on westerly side of White Plains Rd. extend. from northerly side of Arnow Ave. to southerly side of Wilgus St., area bounded by Arnow Ave., Olinville Ave., Britton St., Barker Ave. but excluding area on northerly side of Britton St. between Barker and Olinville Aves. Plans deposit $25.

**O., Macedonia**—DORMITORY COTTAGES—B.A. 2/14—Dpt. P. Wks., S. O. Linzell, Dir., Columbus, dormitory cottages at Hawthornden State Hospital. McGeorge, Hargett & Assoc., 7016 Euclid Ave., Cleveland, engrs. CD 11/2, under LB.

▲ **Ont., Toronto**—PRODUCE, etc.—B.A. 2/14—G. W. Williams, archt., Dpt. P. Wks., Toronto, Bldgs. 1, 2, 3 and 4 at Terminal Bldg. 1, incl. two 2 story, bsmnt., 180x440 ft., rein.-con. produce bldgs.; 1 story, part bsmnt., 200x300 ft. cold storage; two 1 story, bsmnt., 60x240 ft. auxiliary units; 55x70 ft. central heating plant and maintenance shop; 46x50 ft., rein.-con. attached garage; Bldg. 3, brick, concrete electrical substation; Bldg. 4, 55x400 ft. structural steel frame farmers market; 20x60 ft. office, for Ontario Food Terminal Bd., 44 Wellington St. E., Toronto. Approx. $4,000,000. Shore & Moffat, 79 Queen St. E., archts. CD 11/15/44.

**Mass., Bernadston**—SCHOOL—B.A. About 2/15—Town, School Bd., Bernardston, 2 story, brick, steel, concrete school. $250,000. Alan Bartlet, 17 Elliott St., Brattleboro, Vt., archt. CD 1/6/49.

† **N. Y., Brooklyn**—HOSPITAL IMPRVS.—B.A. About 2/15—U. S. Eng., 80 Lafayette St., New York, Zone 13, topsoil, seeding, planting, at Veterans Hospital, Fort Hamilton, Serial No. CIVENG-30-075-50-25.

▲ **Tenn., Nashville**—SCHOOL—B.A. About 2/15—State Bd. Educ., State Office Bldg., School For the Blind. $2,000,000. Marr & Holman, Stahlman Bldg., archts. CD 3/24.

**Conn., Guilford**—SCHOOL—B.A. 2/15—Town, R. H. Curtiss, chn. Bldg. Comn., City Hall, 2 story, 65x85 ft., and 1 story, 35x50 ft. and 25x95 ft. brick steel school Union St. $300,000. Plans deposit $25. Schilling & Goldbecker, 405 Temple St., New Haven, archts. CD 4/28/47.

**Mass., Amesbury** — HOUSING — B.A. 2/15 — Town of Amesbury Housing Auth., 19 School St., 27 frame, duplex, dwelling units, State Aid Proj. 200-1, Macy St., $275,000. Melvin F. Coombs, 56 Central Ave., Lynn, archt. CD 3/24/49.

**Mass., Cohasset**—SCHOOL—B.A. 2/15—Town, Bd. Selectmen, Osgood School, Cohasset, 2 story, bsmnt., 55x65 ft. and 85x215 ft., brick, steel, concrete Junior-Senior High School, Pond St. $900,000. Plans deposit $50. Edgar T. P. Walker, 131 State St., Boston, archt. CD 3/1/49.

**Mo., Kennett**—POWER PLANT IMPRVS.—B.A. 2/15—City, c/o J. W. Karsten, mayor, and Ben Cash, chn. Bd. P. Wks., Kennett, power plant imprvs., incl. diesel engine generator.

**N. Y., New York** — HOUSING TOPSOIL, PLANTING—B.A. 2/15—New York City Housing Auth., 63 Park

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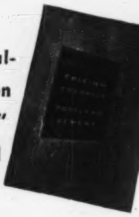

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Row, Zone 7, topsoil, planting for Parkside Houses (Proj. No. NYC-17) in area bounded by Adee Ave., White Plains Rd., Arnow Ave. and Bronx Park East, excluding an area on westerly side of White Plains Rd. extending from northerly side of Arnow Ave. to southerly side of Wilgus St.; area bounded by Arnow Ave., Olinville Ave., Britton St. and Barker Ave. excluding area on northerly side of Britton St. between Barker and Olinville Aves. Plans deposit $25.

**Pa., New Castle**—HOME—B.A. 2/15—Comrs., Lawrence Co. New Castle, dention home, W. H. Eckles Co., 719 Lawrence Savings & Trust Bldg., archts. CD 5/16/47.

**Ia., Des Moines**—PARKING—B.A. 2/16—City, City Hall, ramp parking bldg., 7 and Mulberry Sts. $500,000. Wetherell & Harrison Shops Bldg., archts. CD 9/20, under Unclassified.

**Tex., Houston**—SCHOOL—B.A. 2/16—Houston Independent School Dist., 1600 Washington St., 1 story, brick veneer Curry Road school, concrete frame and fdn., $325,000, Stayton Nunn, 2425 Ralph St., co-ord. archt. Wilson, Morris & Crain, 3330 Graustark St., archts. W. P. Moore, 4605 Montrose St., engr. CD 9/29.

†**Calif., Los Angeles**—KITCHEN, etc.—B.A. 2/21—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., One kitchen and Dining Hall Bldg., 300 for veterans administration center.

**S. D., Watertown**—SCHOOL—B.A. 2/21—Bd. Educ., Watertown, school. $300,000. Hugill, Blatherwick & Fritzel, 367 Boyce Greeley Bldg., Sioux Falls, archts. CD 11/17.

**Tenn., Knoxville**—HIGH SCHOOL—B.A. 2/21—Bd. Educ., 624 Lamar St., South Knoxville High School. Plans deposit $100. Cooper & Perry, Journal Bldg., archts. CD 1/27/47.

### LOW BIDDERS

**Calif., Culver City**—SCHOOL—City, Bd. Educ., 9520 School St., Jan. 27, school bldgs. at Culver City High School, from G. Iannini, 2701 Sepulveda Blvd., Manhattan Beach, **$517,500,** Est. $500,000.

**Calif., El Centro**—SCHOOLS—City School Dist., El Centro, Jan. 19, additions to Washington, Lincoln, Wilson and Harding Schools, from R. J. Daum Constr. Co., 6893 West Blvd., Englewood. **$495,632,** Est. **$475,000, CD 12/20/49.**

† **Calif., Inyokern**—LABORATORY, etc.—U. S. Navy, Inyokern, Jan. 24, 42x482 ft. aero-dynamics laboratory and 21x67 ft. concrete control bldg. at Naval Ordnance Test Station NOY 17182, Spec. 21054, from Claremont Constr. Co., 665 E. Foothill Blvd., Claremont. **$308,394.** CD 1/10.

**Calif., Oakland**—SCHOOL—Bd. Educ., 1025 2 Ave., Jan. 24,31,700 sq. ft., wood frame Brookfield School, from W. Vernon Bernard, 5815 Leona St. **$315,301.** CD 1/5.

▲ **Calif., San Jose**—SCHOOL—East Side Union High School Dist., 115 N. White St., Jan. 24, rein.-con., stucco 14-unit James Lick High School, from O. E. Anderson, Box 251. **$1,125,820.** CD 1/17.

**Calif., Santa Rosa** — MEMORIAL — Sonoma Co., Courthouse, Jan. 20, 1 story, rein.-con., steel memorial bldg., incl., auditorium, stage, offices, etc., Alternate 1, from Frank C. Brunelli, 264 Clemenina St., S. E.; **$630,000.** Alternate 2, from William & Burrows, 10 California Dr., Burlingame, **$586,900.** CD 12/29/49.

▲ **Conn., Meriden**—HOUSING—City of Meriden Housing Auth., Meriden, Jan. 27, 177 two story family unit garden apartments, Yale Acres, from A. Dapont Constr. Co., 1801 Thomaston Ave., Waterbury. **$1,520,000.** CD 1/3.

**Conn., Wolcott**—SCHOOL—Town, Carl G. Mattson, chn. Bldg. Comn., Wolcott, Jan. 25, brick, steel school, Fair Grounds from P. Francini & Co., 99 Hawkins St., Derby. **$254,581.** CD 1/9.

**Ill., Wilmette**—LIBRARY—Wilmette Village, Village Hall, Jan. 25, 2 story, 12,00 sq. ft. library, from Power Constr. Co., 212 Marion St., Oak Park. **$274,941.** CD 1/5.

**Ky., Lakeland**—HOSPITAL—Commonwealth of Ky., Div. Purchases, New State Office Bldg., Frankfort, cancelled bids to have been opened Dec. 28, 1949, 2 hospital bldgs. (female wards). $750,000. Will readvertise. D. X. Murphy & Bros., 707 Louisville Trust Bldg., Louisville, archts. E. R. Ronald & Assoc., 554 S. Third St., Louisville, engrs. CD 12/8/49.

**La., Monroe**—POWER PLANT—City, Jan. 25, Municipal Power Plant extens., etc., from Thomas Bryan & Assoc., Inc., 620 M. & M. Bldg., Houston 2, Tex. **$559,000.** CD 1/12.

**Md., Frederick**—HOSPITAL—Frederick City Hospital, Park Ave., Jan. 25, 2 story, bsmnt., 84x85 ft., brick, block, steel, north wing addn., 1 story, 40x80 ft., brick, block, steel south wing addn., 3 story, 45x78 ft. brick, block, steel nurses home, etc., Frederick Memorial Hospital, from Wm. T. Lyons Co., Inc., 1001 Tower Bldg., Baltimore. **$622,321.** CD 1/4.

**Mich., Detroit**—HOSPITAL—City, Roger V. Walker, pres. Bd. Health, Jan. 24, 5 story, T-shaped, 52x52x90x217 ft., structural steel, rein.-con., masonry, Receiving Hospital addn., St. Antoine St. between Clinton and Macomb Sts., from Kriegoff Co., 6661 French Rd. **$1;219,521.** CD 12/15.

**Minn., Rochester**—PLANT—State Dpt. Admin., State Capitol St., St. Paul, Jan. 24, furnish, install auxiliary equipment and piping sys. in steam power plant for State Hospital, from R. L. Anderson Inc., 519 North Cleveland Ave., St. Paul. **$185,400.** CD 12/22.

† **N. M., Las Cruces**—LABORATORY—U. S. Eng., Box 1538, Albuquerque Jan. 24, laboratory, air-conditioning, steam heating, compressed air sys., White Sands Proving Grounds, Serial No. Eng-29-005-50-15, from Robert E. McKee, Box 1706, Santa Fe. **$832,552.** Est. $750,000. CD 1/16.

▲ **O., Warrensville**—HOSPITAL—Comrs. Cuyahoga Co., Courthouse, Lakeside and Ontario Sts., Cleveland, Jan. 24, general contract 4 story, bsmnt., brick, steel tuberculosis hospital, from Sam W. Emerson Co., 1836 Euclid Ave., Cleveland, **$1,581,000,** est. $2,468,000, plumbing, heating, ventilating, from Van Sickle Co. 1623 St. Clair Ave. Cleveland, **$364,822,** est. $535,000. CD 1/5.

**S. D., Hot Springs**—MEN'S—State Bd. Mgrs., State Soldiers Home, Hot Springs, Jan. 21, general contract men's bldg. at the home, from Henry Carlson Co., 110 E. 10 St., Sioux Falls. **$284,770.** CD 1/3.

**Tenn., Knoxville**—HIGH SCHOOL—Bd. Educ., 624 Lamar St., Jan. 25, East Knoxville High School, from Daugherty & Waters, Mercantile Bldg. **$826,700.** CD 12/22.

**Tex., Deer Park**—PHYSICAL EDUCATION—Deer Park Independent School Dist., Deer Park, Jan. 19, 2 story, steel, brick, hollow tile physical educ. bldg. enlargement band and cafeteria rooms, gym, remodeling from Farnsworth & Chambers, Box 74, Houston, **$392,999.** Est. $250,000. CD 1/11.

**Tex., Littlefield**—HIGH SCHOOL—Littlefield Independent School Dist., Littlefield, Jan .24, general contract 435,000 sq. ft. floor space high school, from Gilstrap Constr. Co., Box 283, Lubbock. **$324,347.** CD 12/20.

**Ont., Ottawa**—LABORATORY—Dpt. P. Wks., Hunter Bldg., Jan. 25, applied chemistry bldg. at National Research Laboratories on Montreal Rd. east of here, from Robertson Constr. & Eng. Co., Ltd., 512 Clifton Ave., Niagara Falls. Approx. **$710,000.** CD 1/11.

### CONTRACTS AWARDED

**Ariz., Tempe**—DORMITORY, etc.—State of Arizona, State Capitol Phoenix, 250 unit men's dormitory at Arizona State College, to Homes & Son, 310 E. Medlock Dr., Phoenix, **$265,724,** awarded 1/12; college library, to J. R. Porter Constr. Co., 3407 N. Seventh St., Phoenix, **$332,687,** awarded 1/14. CD 1/28/49.

**Calif., Sacramento** — BASKETBALL PAVILION — Bd. Educ., 1200 21 St., 40,000 sq. ft., rein.-con. with steel truss basketball pavilion at Sacramento Senior High School, to Edwin J. Mackey, 720 Howe Ave. **472,313.** Bids 1/23.

† **Kan., Leavenworth**—POWER PLANT—Pub. Bldgs. Admin., Federal Wks. Bldg., F St. between 18 and 19 Sts. N.W., Wash., D. C., power plant at U. S. Penitentiary, to Brown-Hawkins Constr. Co., Finance Bldg., Kansas City, Mo. **$157,870.** Bids 1/11. CD 12/29.

▲ **Md., Upper Marlboro**—SCHOOL—Prince Georges Co. Bd. Educ., brick, cinder block, steel, concrete Academic High School, Bladensburg, to John Tester & Son, 1620-2 St. S.W., Wash., D. C. **$1,220,607.** Bids 1/17. CD 1/23, under LB.

**Mass., Wellesley**—HOUSING—Town of Wellesley Housing Auth., Town Hall, Housing Proj. 200-1, to S. & A. Allen Constr. Co., Inc., 262 Washington St., Boston, **$856,000.** Bids 1/5, awarded 1/9. Hugh A. Stubbins, Jr., 103 Pleasant St., Lexington, archt. Thomas Worcester, Inc., 84 State St., Boston, engr. CD 12/8.

▲ **Mass., Weymouth**—HOUSING—Town of Weymouth Housing Auth., 148 unit, 2 story, bsmnt., garden apartments, East Weymouth Section, to Frankini Constr. Co., Inc., 26 Mystic Ave., Medford. **$1,232,912.** Bids 1/18. CD 1/24.

▲ **Miss., Greenwood**—HOSPITAL—City of Greenwood and Leflore Co., hospital, to J. P. Ewin, Inc., P.O. Box 361, Mobile, Ala. **$1,382,000.** Bids 1/24. CD 1/30, under LB.

▲ **N. Y., Homer**—HIGH SCHOOL—Bd. Educ. Homer Central School Dist., Homer, high school, to F. D. Rich Co., 101 Park Ave., New York, Zone 17, **$818,043;** grade school, to Vincent J. Smith, Inc., Box 551, Binghamton, **$506,422.** Bids 1/3. CD 12/7.

**N. Y., Honeoye**—SCHOOL—Bd. Educ., High School Bldg., Honeoye, school and garage, to John Luther & Sons Co., 87 Stillson St., Rochester, **$669,985.** Bids 12/5. CD 11/30.

**Tex., San Isidro (Delmita P.O.)**—SCHOOL—San Isidro Independent School Dist., Delmita, school, to W. D. Ferguson & Son, Brownsville. **$348,842.** CD 1/25, under LB.

**Wash., Seattle**—SCHOOL—School Dist. 1, 810 Dexter Ave., general contract Lafayette School, to Olav Boen Constr. Co., 3647 Stone Way, Zone 3, **$339,800.** Bids 1/24.

**Alta., Lloydminster**—HOSPITAL—Hospital Bd., Lloydminster, hospital, to C. M. Miners Constr. Co., Ltd., 615 Main St., Edmonton. Approx. **$350,000.** Rule, Wynn & Rule, 11422 Jasper Ave., Edmonton, archts.

**Man., Portage La Prairie**—SCHOOL—Province of Manitoba, Winnipeg, School for Mental Defectives, to Winnipeg Supply & Fuel Co., Ltd., 812 Boyd St., Winnipeg. **$566,888.** CD 6/16/47.

**N. B., St. Stephen**—SCHOOL—Municipality, regional high school to Diamond Constr. Co., 60 Carleton St., Fredericton. **$523,300.** Bids 1/12. CD 12/30.

**Ont., Barrie**—SCHOOL—Bd. Educ., A. H. Felt, secy., part 1 story and part 2 story, T-shaped, 200x300 ft., structural steel, brick, Toronto Street School, to Emery Eng. & Contg. Co., Ltd., 34 Dunlop Dr. Approx. **$350,000.** Bids 1/4. CD 12/15.

**Ont., Burlington**—HIGH SCHOOL—Burlington-Nelson District High School, Burlington, brick, steel high school addn., alterations, to W. H. Yates Constr. Co., Ltd., 400 Wellington St. W., Hamilton. Approx. **$250,000.** Bids 1/6. CD 12/14.

**Que., Chicoutimi**—COURT HOUSE—Dpt. P. Wks., Quebec City court house, Cartier St., to Lucien Bertrand et Fils, 98 Bould Riviere de Moulin. Approx. **$700,000.** CD 3/42.

**Que., Westmount**—GARAGE—Municipality, municipal garage, to J. L. E. Price & Co., Ltd., 680 Sherbrooke

St. W., Montreal, $125,000. Wood & Langston, 4444 Sherbrooke St. W., Montreal, archts.

## COMMERCIAL BUILDINGS

### BIDS ASKED

**Md., Baltimore** — CHURCH, etc. — B.A. 2/14 — Grace North Baltimore Methodist Church, Roland and Oakdale Rds., 2 story, bsmnt., 475,000 cu. ft., brick, colonial church and Sunday school, $375,000. CD 11/7.

**W. Va., Weirton**—COMMUNITY CENTER—B.A. About 2/15—Community Center Assn., Ray M. Corll, pres., Weirton, community center. Approx. $300,000. CD 1/25/49.

**Mass., Concord**—HOSPITAL—B.A. 2/15—Emerson Hospital, Rd. to Nine Acre Corner, hospital addns., alterations. $550,000. Bids 5/12, rejected. LB. **$826,200.** Perry-Shaw-Hepburn, 31 St. James Ave., Boston, archts., Cleverdon-Varney-Pike, 120 Tremont St., Boston, engrs. CD 5/24.

**Mich., Detroit**—CHAPEL and CONVENT—B.A. 2/15—Carmelite Sisters of the Divine Heart of Jesus, 4800 Cadieux Rd., 4 story, 40x178 ft. masonry, concrete, structural steel, chapel and convent addn., St Joseph's Home, $250,000. Leo Bauer, 534 Free Press Bldg., archt.

**Mo., Clayton (St. Louis, 5, P. O.)**—STORE—B.A. 2/15—Scruggs, Vandervoort-Barney, Inc., 9 and Olive St., St. Louis, Zone 1, 2 story, brick, rein.-con., tile, branch dept. store, Forsyth and Clayton Rd. Harris Armstrong, 3 Sappington Spur, Oakland, St. Louis, Zone 22, archt. CD 10/5/45.

**N. J., Burlington**—INFIRMARY—B.A. 2/15—Masonic Home & Charity Foundation of New Jersey, Jacksonville Rd., infirmary, $275,000. Extended date. Hetzel & Albert, 501 Cooper St., Camden, archts. CD 11/30.

**N. C., Greensboro**—OFFICE—B.A. 2/15—J. P. Stevens Co. Inc., c/o Charles C. Hartmann & Son, archts., Greensboro, office. $500,000. Extended date. CD 8/12.

**Tenn., Knoxville**—HOSPITAL—B.A. 2/16—East Tennessee Cripple Childrens Hospital, c/o Shelton & Stachel, archts., 205 Moody Ave., hospital addn. Approx. **$250,000.** CD 8/16.

▲ **N.Y., Ogdensburg** — CATHEDRAL — B.A. 2/17 — St. Mary's Cathedral, Ogdensburg, cathedral repairs. $1,300,000. MacGinnis & Walsh, 116 Newberry St., Boston, Mass., archts. CD 1/11.

**Wash., Olympia**—CONVENT—B.A. 2/17—In Chancery Office, Coadjutor Bishop, T. A. Connolly, 907 Terry Ave., Seattle, 1 story 127x273 ft. school $215,000, 2 story, bsmnt., 40x78 ft. frame convent $85,000, for St. Michael's Parish, Olympia. J. W. Maloney Central Bldg., Seattle, Zone 4, archt. CD 11/7.

▲ **Ill., Chicago**—APARTMENT—B.A. 2/20—Owner, c/o Dubin & Dubin, archts., 140 N. Dearborn St., 14 story, 516 unit, brick, rein.-con., stone apartment, $4,800,000.

▲ **Okla., Oklahoma City**—Y. M. C. A. BLDG.—B.A. 2/23—Young Mens Christian Assn., 125 N. W. 2 St., 8 story, bsmnt., Y. M. C. A. bldg., 5 and Robinson Sts., $2,000,000. Sorey, Hill & Sorey, 809 N. W. 36 St., archts. CD 4/26/45.

### SOON LETS CONTRACT

▲ **Ga., Atlanta** — APARTMENT — Paces Ferry Tower Apartments, Inc., c/o James C. Wise, archt., 205 Techwood Dr. N. W., soon lets contract, apartment development. Approx. $1,000,000.

**Ga., Savannah** — COMMUNITY CENTER — Greek Community Center, c/o Cletus W. Bergen, archt., 127 Hobersham St., soon lets contract community center.

**Ill., Chicago**—APARTMENT—Elandee Bldg. Corp., 72 and Coles Ave., Zone 49, soon lets contract 60 unit, brick, rein.-con. apartment, $500,000. Carl J. Kastrup, 7346 Madison St., Forest Park, archts.

**Ill., Chicago**—RESEARCH—Illinois Institute of Technology, Federal and 33 Sts., Zone 16, soon lets contract 1 story, 30,000 sq. ft. research bldg. addn. $300,000. Friedman, Alschuler & Sincere, 223 W. Jackson St., Zone 6, archts. CD 12/1/47.

▲ **O., Cincinnati**—APARTMENTS—Glen Meadows, Inc., Lawrence Tucker, mgr., 2515 Burnet Ave., soon lets contract 32 two and three story, bsmnt., brick apartments, incl. landscaping, streets, sidewalks, drives, play areas, etc. $2,500,000. Potter, Tyler & Martin, 128 E. 6 St., archts. Henry Fletcher, 5 Mile Rd., landscape archt. Wm. D. Ehlers, 1701 Union Trust Bldg., plumbing, heating, electrical engr. Larson, White & Hunt, 2nd Natl. Bank Bldg., engrs.

**Pa., Phila.**—CHURCH—St. Helena's Roman Catholic Church, 6161 N. 5 St., soon lets contract church. Approx. $250,000. Gleeson & Mulrooney, Fox Bldg., archts.

**Tex., Alice**—BANK—Alice Bank & Trust Co., Alice, soon lets contract masonry bank, summer-winter air-conditioning, electric passenger and service elevators, etc. $250,000. Christensen & Christensen, 709 N. St. Paul St., Dallas, archts.

**Ont., Port Colborne**—BUSINESS BLOCK—Building Committee of the I.O.O.F., Port Colborne, O. c/o A. B. Scott, archt., 65 Empire St., Welland, soon lets contract 3 story, steel brick business block with offices, lodge rooms, bsmnt. business premises, for Beacon Lodge I.O.O.F., F. Chalmers, secy., Humberstone. Approx. $250,000.

**Que., Amos**—SEMINARY—J. C. Fortin archt., P. O. Box 2089 Val d'Or, soon lets contract seminary, for Roman Catholic Diocese of Amos, Rt. Rev. J. A. Desmarais, bishop, Approx. $800,000. CD 6/12/47.

### LOW BIDDERS

**Mass., Winchester**—HOSPITAL—Winchester Hospital, 41 Highland Ave., Jan. 20, 4 story, bsmnt., 24,000 sq.

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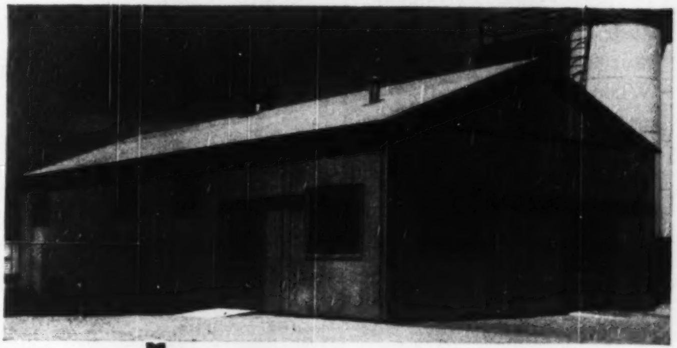

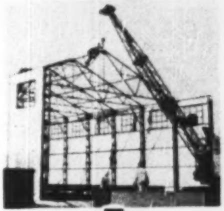

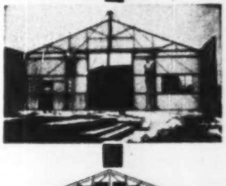

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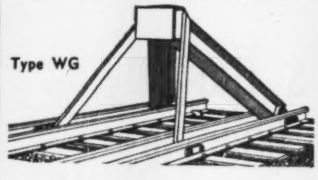

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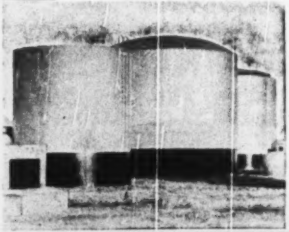

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ft., brick, steel, concrete hospital addn., alteration from Daniel Cunningham Constr. Co., Inc., 20 Kilby St., Boston, **$763,794.** Est. $650,000. CD 1/11.

**Tex., San Antonio**—SCHOOL—St. Anne's Church, Fredericksburg Rd. and French Pl., Jan. 24, 3 story school, from Emmett T. Jackson & Son, 216 Insurance Bldg., **$253,000.** Est. $250,000. CD 12/20.

**Que., Sherbrooke**—HOTEL—A. Vigneault & Assocs., Kingston St., hotel, Depot St. near C. N. R. Station, from Cyrille Michaud, 55 Olivier St., Approx. **$400,000.** Audet, Tremblay & Audet, 52 Prospect St., archt. Crepeau Cote & Lemieux, 45 Wellington St. W., engrs.

### CONTRACTS AWARDED

**Ala., Birmingham**—APARTMENT—Bradmor Apartments, Inc., c/o Van Keuren, Davis & Co., archts., American Life Bldg., 96 apartment units, to Mann Bros. Building Co., c/o archts. Approx. **$350,000.** CD 11/25.

**Ala., Birmingham**—RESIDENCES—Marbro Homes, c/o contractor, residential development, to G. A. Paul Constr. Co., 14 Bonita Dr., Approx. **$250,000.**

**Calif., Whittier**—DWELLINGS—Kenbo Corp., 2301 E. Colorado Blvd., Los Angeles, 39 frame, stucco dwellings, Norwalk Blvd., Bexley and Rockwell Sts., to K. P. S. Builders, 2301 E. Colorado Blvd., Los Angeles. Approx. **$259,320.** Burge & Roach, 510 Knight Way, LaCanada, archts.

**Conn., East Hartford**—HOUSING—George R. Decker, Inc., 2744 Main St., Stratford, 100 houses and garages, Owner builds, **$950,000.** CD 1/31.

**Conn., Middletown**—HOUSING—Mohawk Corp., Wadsworth St., 85 single frame houses, Wadsworth St. Owner builds, **$700,000.** C. A. Segerberg, 363 Main St., archt. CD 1/26.

**Conn., West Hartford**—HOUSING—Webster Hill Co., 184 Webster Hill Blvd., 40 frame houses, Webster Hill Blvd. Owner builds. **$325,000.**

**Conn., Windsor**—HOUSING—Arthur G. Woods, 1098 Matianuck Ave., 20 family frame units, Broad St. Owner builds. **$850,000.**

**Del., Seaford**—APARTMENT—West Manor Apartments, Selbyville, apartment, Locust St., to Hastings Eskridge Co., Seaford, **$250,000.** Aaron Colish, 117 S. 17 St., Phila., Pa., archt.

**Del., Wilmington**—RESIDENTIAL DEVELOPMENT—Edwin H. Boyer & Sons, Rose Hill, New Castle, residential development, Mayview Manor Section, separate contracts, **$250,000.**

**Del., Wilmington** — RESIDENTIAL DEVELOPMENT — Owner c/o contractor, residential development, W. 39 St., to Wolfe Constr. Co., 17 and Thompson Sts., Phila., Pa., **$250,000.** E. G. Dollar, 1011 Washington St., archt.

**Fla., Hollywood**—HOMES—J. W. Fiske, c/o James Young, archt., First National Bank Bldg., 40 homes, own forces. **$300,000.**

**Fla., Hollywood**—HOMES—Starrett Bldg. Co., P. O. Box 309, 30 homes, own forces, **$300,000.**

**Fla., North Miami**—RESIDENTIAL DEVELOPMENT—N-Four, Inc., c/o contractor, Nichol Heights Residential Development addn., incl. 98 homes, to Nichols Constr. Co., 13700 N. W. 7 Ave., Approx. **$600,000.**

**Fla., North Miami**—HOMES—Priscilla Realty Co., c/o contractor, 56 homes, to City Constr. Corp., 150 N. W. 73 St., Miami. Approx. **$350,000.**

**Ill., Chicago**—STORE—Baer Bros. & Prodie, 4132 W. Madison St., Zone 24, 3 story modernization of store to Inland Constr., Inc., 134 N. La Salle St., Zone Zone 2, **$250,000.** Awarded 1/25. I. M. Cohen, 26 S. State St., Zone 3, archt.

**Ill., Chicago**—HOME—Bethesda Home for the Aged, 2833 N. Nordica St., Zone 33, design and construction, 5 story, 45x180 ft., brick, rein.-con. Home for Aged, to Sievert & Klefstad, 3540 N. Kostner St., Zone 41; electrical work, to Henry Newgard & Co., 549 W. Washington St., Zone 6, Est. Approx. **$300,000.** CD 10/18.

**Ill., Chicago**—RESIDENCES—Elandee Bldg. Corp., 6412 S. Ashland St., Zone 36, 40 residences, 8317 S. Prairie Ave., Zone 19. Owner builds, **$280,000.** Floyd Evans, 1962 E. 73 Pl., Zone 49, archt.

**Ill., Chicago**—APARTMENT—Pottawattomie Apartments, Rogers and Woolcott Sts., Zone 26, 45 unit rein.-con. brick apartment, to J. Laurence Kleinfeld, 188 W. Randolph St., Zone 1, **$250,000.** Awarded 1/20. CD 11/25.

**Ill., Chicago**—COMMUNITY HOUSE, etc.—St. Anselm Parish, 200 E. 61 St., 1 story, 144x180 ft., steel, concrete, brick, stone community house and gymnasium, to Frank Burke & Son, 35 S. Dearborn St., Zone 3, **$250,000.** Bids 12/12, awarded 1/24. CD 11/23.

**Ill., Hinsdale**—HALL, etc.—Union Church of Hinsdale, 2 story, steel, brick, stone concrete parish hall and two chapels, to Henry Pfutzenreuter & Sons, 53 W. Jackson St., Chicago, Zone 4, **$250,000.** Awarded 1/12. CD 7/22.

**Ky., Newport**—RESIDENCES—John Laycock, 19 Riddle Ave., twenty-five 1½ story, bsmnt., brick residences, Laycock Dr. and Riddle Pl., separate contracts, **$250,000.**

**La., Shreveport**—APARTMENTS—F. J. Zuzak & Co., 259 E. Ratcliff St., 76 apartment units, Owner builds. **$500,000.**

**Md., Baltimore**—RESIDENCES—Wm. A. Casale, 923 El Belvedere Ave., fifty-one 2 story, brick, cinder block residences, 1200-1216, 1218-32, 1238-44 Woodbourne Ave.; 5417-29, 5501-15 Beauregarde Ave.; 5400-14, 5416-28 Northwood Dr., separate contrcats. **$255,000.**

▲ **Md., Baltimore**—RESIDENCES—Eastern Bldg. Co., 900 Court Sq. Bldg., two hundred sixty-three 2 story, 16x27x32 ft., and 14x27x30 ft., brick residences, 300-352 Hornel St., 300-348 and 400-436 Imla St., 300-345 and 400-436 Joblin St., 300-342 and 400-436 Kane St., separate contracts, **$1,074,430.** K. C. Miller, 2203 N. Charles St., archt.

**Md., Salisbury**—APARTMENTS—North Park Gardens, Inc., c/o Aaron Colish, archt., 117 S. 17 St., Phila., Pa., apartment development, Glen Ave., to Chandler Constr. Corp., Glen and Hillside Ave., $350,000. CD 1/13.

**Mass., Pittsfield**—SCHOOL—St. Luke's Hospital, 399 East S., 5 story, bsmnt., 100x200 ft., brick, steel, concrete nurses school, East St., to Ernest J. Cramer, 28 North St., **$750,000.** Bids 1/10. CD 12/27.

▲ **Mo., St. Louis**—STORES—St. Louis Produce Market, Inc., E. H. Sellmeyer, pres., 825 N. 3 St., Zone 3, 115x1225 ft., rein.-con. bldgs. (98 stores) 75 ft. wide drives in rear each bldg., canopies over loading docks, rialroad loading and unloading facilities, North Market, Palm and First Sts. and North Broadway, to Robinson Erection Co., 5540 West Park Ave., Zone 10, Approx. **$3,000,000.**

**N. J., Trenton**—RESIDENTIAL DEVELOPMENT—John J. Klein, 742 Valley Forge Ave., residential development, Gedney Ave., separate contracts, **$250,000.** W. W. Vanderclute, 8 South Ave., Cranford, archt.

**N. J., Woodbury**—RESIDENTIAL DEVELOPMENT—Frank Solasin, 9 N. Dudley St., Camden, residential development, N. Warren St., etc., separate contracts. **$250,000.** 4

▲ **N. Y., Brooklyn**—APARTMENTS—Concord Freeholders, Inc., c/o Savings Bank Trust Co., 14 Wall St., New York, Zone 5, three 15 story apartments, Adams and Tillary Sts., Jay and Tillary Sts., and set back north of Tillary St. between Adams and Jay Sts., to Paul Tishman Co., Inc., and Sol Atlas, 595 Madison Ave., New York, Zone 22, **$4,000,000.** Benjamin Braunstein & Alfred H. Ryder, 163-18 Jamaica Ave., Jamaica, archts. CD 11/15/46.

**N. Y., Elmont**—CHURCH—St. Boniface Church, Elmont Rd., church, to Safarelli Bros. Bldg. Co., 161-19 Jamaica Ave., Jamaica, Approx. **$350,000.** Joseph J. Gunther, 193 Rockaway Ave., Valley Stream, archt.

**N. Y., New York**—APARTMENT—Olof Corp., 2488 Grand Concourse, Zone 58, 6 story apartment, 201 St. and Perry Ave., separate contracts. **$400,000.** CD 12/2.

**O., Chagrin Falls**—HOMES—H. W. Shepherd, 10708 Shaker Blvd., Shaker Heights, 11 homes, Richmond Blvd., separate contracts. **$385,000.**

**O., Cincinnati** — RESIDENCES — Charles Funk, 2701 Montana Ave., twenty-six 1½ story, bsmnt., residences, Byrnside Dr., Colerain Twp., separate contracts. **$312,000.**

**O., Cincinnati** — RESIDENCES — Lang Brothers, Inc., 5240 Lester Rd., twenty-two 1½ story bsmnt., 37x38 ft., residences in Beldon Circle, Englewood sub-division, separate contracts. **$330,000.** CD 8/30.

**O., Cincinnati**—APARTMENTS—Erwin Lieberman, 6213 Girard Ave., one 13, three two story, bsmnt., brick apartments, separate contracts. **$300,000.**

**O., Cincinnati**—RESIDENCES—Ohio Homes, Inc., B. Schwein, in charge, 4 and Walnut Sts., one 2, thirty 1 story, bsmnt., 24x32 ft. residences, North College Hill, separate contracts. **$300,000.**

**O., Cincinnati**—RESIDENCES—Smith & Kettler, Box 62, one 13, forty-eight 1½ story, bsmnt., brick residences, Deer Park, separate contracts. **$480,000.** Lee Firth, 3778 Isabella St., archts.

▲ **Ore., Portland** — APARTMENT — Portland Towers Corp., 715 S. W. Columbia St., 226 unit Portland Towers Apartment to L. H. Hoffman, 715 S. W. Columbia St., **$2,250,000.** Awarded 1/28. Don Buyers, Builders Exchange Bldg., archt. Pierson & Tidball, Concord Bldg., engrs.

**Pa., Doylestown**—APARTMENT—North Gardens, Inc., c/o Stringer Constr. Co., North St., apartment development, North St. and Davis Rd., separate contracts. Approx. **$250,000.** Brown & Genther, 112 E. 3 St., Bethlehem, archts.

**Pa., Drexel Hill** — RESIDENCES — R. D. & J. M. Wilson, 5043 Dermond Rd., residential development, Dermond Rd., separate contracts. **$250,000.** Lewis Wood Easby, 844 Montgomery Ave., Narberth, archt.

**Pa., Phila.** — APARTMENTS — Girard Court Apartments, Inc., c/o Edwards & Green, archts., Broadway and Carman Sts., Camden, N. J., apartments, N. College Ave. between 21 and 22 Sts., separate contracts. **$350,000.**

**Pa., Phila.** — RESIDENCES — Morris Park Constr. Co., 1121 N. 66 St., residential development, Akron St., separate contracts. **$364,000.** S. S. Rochlis, 5664 Diamond St., archt.

▲ **Pa., Phila.** — RESIDENCES — Nardelli Homes, Inc., 123 S. Broad St., 300 residences, Point Breeze Ave., separate contracts. **$2,500,000.**

**Pa., Phila.**—RESIDENCES—Scarcia Constr. Co., 4667 Torresdale Ave., residential development, Montague St., etc., separate contracts. **$250,000.**

**Pa., Phila.**—CONVENTS—St. John Cantius Roman Catholic Church, Orthodox and Almond Sts., convents (conversion from school bldg.), to Frank V. Radomski & Son, Inc., 244 W. Queen Lane St., **$250,000.** Gleeson & Mulrooney, Fox Bldg., archts.

**R. I., Johnston**—HOUSING—Daniel Valente, 47 Madison Ave., Cranston, 25-30 brick veneer, frame houses, Tiffany St. Owner builds. Approx. **$300,000.** M. DiBenedetti, 28 Moorefield St., Providence, archt.

**Tenn., Memphis**—HOMES—H. Dlugach & Co., 14 N. 2nd St., 114 homes near Gregg School. Owner builds. Approx. **$500,000.**

**Tex., Abilene** — RESIDENCES — Dream Homes, Inc., Abilenee, 100 addnl. residences. Owner builds. Approx. **$700,000.** CD 1/19.

**Tex., Beaumont** — APARTMENT — Gaylynn Apartment Corp., c/o D. Hannah & J. Cassidy, 800 Main St., Houston, 15 apartments, adjacent Gaylynn Theatre zone, own forces. Approx. **$975,000.** CD 1/11.

**Tex., Bellaire** — DWELLINGS — L. W. Prokop, 3711 Glenhaven St., Houston, 50 dwellings, off Silber Rd., near here, to Prokop Constr. Co., 5727 Kirby Dr., Houston, Approx. **$300,000.** CD 1/20.

**Tex., Dallas**—SHOPPING CENTER—W. C. Caruth, Jr., 5803 Greenville St., 2nd. sect. of enlarging shopping center along Southwestern Blvd. and Inwood Rd. area, to J. Lawrence Jones, 406 W. Clarendon St., Approx. **$950,000.** George L. Dahl, 2101 N. St. Paul St., archt.

**Tex., Dallas**—APARTMENT—Paul Crum, 4418 Vandelia St., 100 unit one bedroom apartments, near Lakewood Country Club, own forces. Approx. **$750,000.** CD 1/19.

**Tex., Fort Worth** — HOUSING — Joe Driskill & Co., 4025 W. Vickery St., housing in Sunset Heights addn. Owner builds. Approx. **$350,000.** CD 1/30.

**Tex., Fort Worth** — HOUSING — J. E. Foster & Son, 1100 W. Summit St., housing. Owner builds. Approx. **$300,000.** CD 1/30.

**Tex., Galveston**—HOUSING—Town & Country Builders, Inc., c/o Nathan L. Jones, pres., 9001 Denton Dr., Dallas, housing. Owner builds. **$325,000.** CD 1/6.

**Tex., Houston**—HOUSING—C. M. Campbell, 2368 Rice Blvd., housing, own forces. Approx. **$275,000.** CD 1/13.

**Tex., Houston**—DWELLINGS—L. D. Rogers, 6906 Capitol St., 30 dwellings, own forces. **$250,000.** CD 1/13.

**Tex., Houston**—DWELLINGS—Comora Cone Real Estate, 4503 Griggs Rd., 35 dwellings. Owner builds. Approx. **$265,000.** CD 1/23.

**Tex., Houston** — CONVENT — Dominican Convent, Sacred Heart College, 6501 Almeda Rd., convent enlargement, to Fretz Constr. Co., 2000 Eastwood St., **$256,100.** Est. $275,000. Bids 1/27. CD 1/23.

**Tex., Houston** — HOUSING — D. D. Hutchinson, 6619 Long Dr., housing. Owner builds. **$300,000.** CD 1/13.

**Tex., Houston** — DWELLINGS — A. B. Reese, 2615 Metcalf St., 32 dwellings. Owner builds. **$275,000.** CD 1/13.

**Tex., Houston** — DWELLINGS — W. E. Robertson, 6613 Long Point Rd., 100 low-cost dwellings. Owner builds. **$450,000.** CD 1/27.

**Tex., Houston** — HOUSING — Shady Park Building Co., 8608 Parker Blvd., housing in Shady Park Addn. Owner builds. **$250,000.** CD 1/20.

**Tex., McKinney**—HOUSING—Town & Country Builders, Inc., c/o Nathan L. Jones, pres., 9001 Denton Dr., Dallas, housing. Owner builds. **$275,000.** CD 1/16.

**Tex., Rockwall**—HOUSING—Town & Country Builders, Inc., 9001 Denton Dr., Dallas, housing. Owner builds. **$265,000.** CD 1/9.

**Tex., San Antonio**—DWELLINGS—Kinmac Quality Homes, 426 John Adams St., 40 dwellings, off Basse and Blanco Rds. Owner builds. **$300,000.** CD 1/13.

**Tex., San Benito**—DWELLINGS—Tilton Garrison, San Benito, 50 dwellings, own forces. **$350,000.** CD 1/13.

**Tex., Texas City**—HOUSING—Magnolia Development Co., Texas City, housing in Midland Park, Sect. A. Owner builds. Approx. **$250,000.** CD 1/13.

**Tex., Victoria**—HOUSING—The Ayrshire Corp., 6825 Academy St., Houston, 10 housing or efficiency units bldgs. Owner builds. Approx. **$750,000.** Wilson, Morris & Crain, 3330 Graustark St., Houston, archts. CD 1/12.

**Tex., Victoria** — APARTMENT — Ayrshire Corp., 6825 Academy St., Houston, sixty-four 2-bedroom garage apartments. Owner builds. Approx. **$475,000.** CD 1/12.

**Vt., Middlebury**—DORMITORIES—Middlebury College, Middlebury, design and construction, 2 dormitories to Austin Co., 19 Rector St., New York 6, N. Y. Approx. **$397,000.**

**Wis., Madison**—SCHOOL—St. Bernard's Catholic Congregation Madison, 1 story school, to Geo. Nelson & Son, 1117 W. Johnson St. Approx. **$330,000.** Bids 1/24. CD 1/10.

**Ont., Ottawa**—APARTMENT—K. J. Greene, 18 Rideau St., 5 story, 38 suite apartment, Besserer St., between Friel and Chapel Sts., own forces. Approx. **$250,000.**

**Ont., Ottawa**—STORE, etc.—Peoples Credit Jewellers, Ltd., 190 Sparks St., 2 story, bsmnt., stone, brick store and office, to Doran Constr. Co., Ltd., 5 Concord St., Approx. **$250,000.** Bids 1/14. CD 1/23.

**Que., Montreal** — COTTAGES — J. A. Boldux, 3325 Barclay Ave., 35 cottages. Owner builds. **$280,000.**

**Que., Montreal** — APARTMENTS — G. Deneau, 3720 Van Horne Ave., apartment dwellings, Cote des Neiges Rd. **$310,000;** apartment dwellings, on De Lapeltrie St., **$350,000.** Owner builds. C. Grenier, 170 Geneva Cres., Mount Royal, archt. CD 7/28.

▲ **Que., Montreal**—HOUSING—Progressive Constr., Inc., 7 Beaugrand St., 38 housing units, Ontario St., own forces. **$2,000,000.**

## INDUSTRIAL BUILDINGS

### BIDS ASKED

**Neb., Omaha**—PLANT—B.A. 2/17—Paramount Paper Products Co., 1408 Howard St., plant. $100,000. J. E. Loftus, Omaha Natl. Bank Bldg., archt.

**Tex., Midland**—SALES, AUTO SERVICE, SHOP—B.A. 2/17—Miles Hall Buick Co., Midland, auto service, shop, sales. $90,000. Charles H. Neuhardt, 223 S. Big Spring St., archt. Cool & Stilley, 223 S. Big Spring St., engrs.

**Ill., Chicago**—FACTORY—B.A. 2/20—O'Bryan Bros., 4220 W. Belmont St., 1 story 120x135 ft., steel, concrete, brick factory, $100,000. Revised plans. G. E. Pearson, 4437 W. Wrightwood St., archt. CD 11/23.

**Tex., Bishop**—GRAIN ELEVATORS—B.A. 2/21—Bishop Milling Co., Bishop, 350,000 bu. grain storage elevator. $125,000. CD 1/30.

▲ **O., Cincinnati**—WAREHOUSE, etc.—Bids Asked—J. T. Ryerson & Sons, Inc., Front and Ferguson Sts., office and warehouse. $1,000,000. Vogt Ivers & Seaman, 2nd Natl. Bank Bldg., 9 and Main Sts., archts CD 1/9.

### SOON LETS CONTRACT

**Ill., Bensonville**—ENGINE HOUSE—Chicago, Milwaukee St. Paul & Pacific R. R. Co., R. J. Middleton, ch. engr., Union Station, Chicago, Zone 6, soon lets contract diesel engine house, $200,000.

**Ill., Evanston**—SALES ROOM, etc.—Cadillac Motor Car Co., General Motors Bldg., Detroit, Mich., soon lets contract 1 story, sales room and service bldg., 1940 Ridge Ave. $400,000. Argonaut Realty Corp., 9 General Motors Research Bldg., Detroit, Mich., archts.

**Ill., Huntley**—FACTORY—Union Special Machinery Co., soon lets contract 20,000 sq. ft. factory addn. $100,000. Shaw, Meta & Dolio, 208 S. la Salle St., Chicago Zone 4, archts.

**Mass., Dedham**—FACTORY—United Waste Co., 90 Milton St., soon lets contract 3 story, brick, concrete factory addn., Milton St. $75,000, Mark Linenthal, 16 Lincoln St., Boston, engr.

**Mass., Roxbury** — WAREHOUSE — Arthur Rosenstein, archt., 184 Boylston St., Boston, soon lets contract 1 story, brick, concrete warehouse, Columbus Ave., for Republic Pipe & Supply Co., 134 Columbus Ave. Approx. $68,000.

**Minn., Mankato**—PLANT—Archeraniels Midland Co., 600 Roanoke Bldg., Minneapolis, soon lets contract one 5-story and one 3-story solvent extraction pit, 1 steel masonry warehouse, $400,000.

**N. Y., Astoria**—SUBSTATION—Consolidated Edison Co., 4 Irving Pl., New York, Zone 3, soon lets contract electric substation alterations.

**Pa., Phila.**—WAREHOUSE—Irving S. Towlsey, engr., Finance Bldg., soon lets contract warehouse addns, alterations for Edgcomb Steel Co., D St. and Erie Ave. Approx. $68,000.

**Pa., Phila.**—TRUCKING TERMINAL—Yale Transport Corp., 2622 Parish St., soon lets contract, trucking terminal and office. Approx. $68,000.

**Tex., Houston**—WAREHOUSE—Finger Furniture Co., 3131 Calhoun Rd., soon lets contract 15,000 sq. ft., 1 story, steel warehouse addn., 3131 Calhoun Rd. Irving R. Klein & Assoc., 1317 Austin St., archts.

**Tex., Mineral Wells**—POWER HOUSE, etc.—Nazareth Hospital, Mineral Wells, soon lets contract brick, steel, concrete power house, laundry plant, mechanical garage, heating sys. $75,000. A. B. Withers, American Fidelity Bldg., Fort Worth, archt.

**Tex., San Antonio**—WAREHOUSE, etc.—Wm. Cameron & Co., 126 Crosby St., soon lets contract, warehouse, woodworking shop. $275,000. W. E. Simpson Co., 945 Milam Bldg., engr. CD 1/30.

**Tex., San Antonio** — WAREHOUSE — Scobey Fireproof Storage Co., 315 N. Medina St., soon lets contract, warehouse, $260,000. Atlee B. & Robert M. Ayres, Transit Tower, archts. W. E. Simpson Co., Milam Bldg., engr. CD 1/18.

### LOW BIDDERS

**Ga., Atlanta** — WAREHOUSE — Warehouse Realty Co., c/o Fuller & Beckett, archts., 88 Walton St., N. W., Jan. 26, warehouse addn., from Van Winkle & Co., Whitehead Bldg., **$146,891.** CD 1/11.

**Minn., Maple Lake** — GARAGE, etc. — Wright-Hennepin Electric Co-operative, Maple Lake, Jan. 19, R. EA. office-garage bldg., from R. C. Elvin Co., 2517 Nicollett Ave., Minneapolis, **$159,615.** CD 12/29.

**Tex., San Antonio** — WAREHOUSE — Scobey Fireproof Storage Co., 315 N. Medina St., Jan. 31, warehouse, from E. H. Conrad, 150 Simpson St., **$152,721.** CD 1/27.

**Vt., Milton**—FACTORY, etc.—Kienie & Son, 33 Nassau Ave., Brooklyn, N. Y., Jan. 17, factory and office wing, Maple Grove Ave., from Harty Constr. Co., 25 Huntington Ave., Boston, Mass., **$212,000.** Jaros Baum & Bolles, 415 Lexington Ave., New York, N. Y., engrs. CD 1/12.

### CONTRACTS AWARDED

**Calif., Los Angeles**—GARAGE—Janss Investment Corp., 1081 Westwood Blvd., 3 story, 216,000 sq. ft., rein.-con. garage, 10860 LeConte Ave., to C. L. Peck, 816 W. 5 St., **$700,000.** Bids 12/23. CD 12/16.

**Calif., San Francisco**—WAREHOUSE—Libby, McNeill & Libby, 60 California St., 1 story, 30,000 sq. ft. mezzanine steel frame warehouse, to Alfred P. Fisher, 300 Montgomery St. Approx. **$150,000.** W. D. Peugh, 333 Montgomery St., archt. Bids 1/19. CD 1/11.

**Fla., Jacksonville**—PLANT—The Austill Waxed Paper Co., c/o George W. Simons, engr., Hilderbrandt Bldg., Zone 2, mfg. plant, to Ivy H. Smith Co., 1525 San Marco Blvd., Zone 2, **$75,000.** Awarded 1/25.

**Ga., Vidalia**—WAREHOUSE—The Bridge & Georgia Warehouses, Vidalia, tobacco warehouse, to A. B. Newton, Vidalia, Approx. **$75,000.**

**Ill., Chicago**—WAREHOUSE, etc.—Certified Grocers of Illinois, 48 and S. Central Ave., 80,000 sq. ft. brick, concrete, steel warehouse and office, Stickney Twp., to J. Emil Anderson & Son, 1809 Balmoral St., Zone 40, **$400,000.** Awarded 1/23. Arthur J. Heda, 2844 W. Catalpa St., Zone 45, archt.

**Ill., Chicago**—PLANT—International Harvester Co., 180 N. Michigan St., Zone 1, plant addns., 2845-69 S. Western Ave., to R. H. Burkhardt, 180 N. Michigan St., Zone 1, **$71,000.** O. A. Krueger, 180 N. Michigan St., archt.

**Ill., Chicago**—FACTORY—Service Plastics Co., 1120 W. Jackson St., Zone 7, factory, to Jacob Cohen, 52 W. Waller St., Zone 44, **$68,000.** E. Steingorn, 176 W. Adams St., Zone 3, archt.

**Ill., Chicago**—PLANT—Illinois Steel Tank Co., 7400 S. Damen St., Zone 36, steel, concrete, brick plant addn., to Turnham & Lucht, 8552 S. Rhodes St., Zone 19, **$68,000.** Awarded 1/3. B. A. Comm., 1607 Howard St., Zone 26, archt.

**Ill., Skokie**—FACTORY—Woodall Co., Inc., Oakton at McCormick Sts., design and constructing 100,000 sq. ft., factory, to Brown & Matthews, Inc., 122 E. 42 St., New York, N. Y., **$800,000.** CD 6/22.

**Mass., Worcester**—FACTORY—Grief Bros., Cooperage Co., 6 Dexter St., 1 story, 82x155 ft., brick, steel, concrete factory, Dexter St., to R. J. Ratte Co., 54 Midland St Approx. **$72,000.**

**N. J., Trenton**—FACTORY—Integro Co., c/o Arthur N. Rogers, archt., 125 Morningside Dr., steel, masonry factory, to William C. Ehret, 209 Academy St., **$68,000.**

**Ore., Portland**—PLANT—Union Pacific R. R. Co., W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Neb., 58,000 sq. ft. motor car assembly plant at 77 and Killingsworth Sts. to Peter Stuart Constr. Co., 2408 N. E. 82 St., Approx. **$360,000.** Awarded 1/14. Kaiser-Frazer Motor Co., lessee. Wolf & Phillips, Pearson Bldg., archts. CD 10/17.

▲ **Ore., Troutdale**—PLANT IMPRVS.—Reynolds Metal Co., Troutdale, rebuilding roofs of bldgs., installing washing towers, dust collectors and hooding of aluminum furnaces to L. H. Hoffman, 715 S.E. Columbia St., Portland, Roy T. Early Co., 321 Middle Waterway, Tacoma, Wash., Vinnell Co. of the Pacific, Portland, C. T. Malcolm, 4085 N. Columbia Blvd., Portland, and R. J. Strasser, 8110 S.E. Sunset St., Portland. Approx. **$2,000,000.**

**Pa., Phila.**—BREWERY—Wm. Gretz Brewing Co., 4 and Oxford Sts., 5 story 6,000 sq. ft., brick, steel brewery addn., to Charles A. Kessler, 1649 N. Broad St. Approx. **$68,000.**

**Tex., Castroville**—OIL PUMPING STATION—Atlantic Pipe Line Co., Castroville, crude oil pumping station enlargement, Purchase and Hire. Approx. **$95,000.** CD 1/30.

**Tex., Dallas**—FACTORY—Collins-DeVoust Paint Mfg. Co., 911 Terminal St., factory, to Jopling & Spencer, 331 W. Louisiana St., **$70,000.** Smith & Wardner, 419 E. Jefferson St., engrs. and archts.

▲ **Tex., Dallas**—FOUNDRY—Lone Star Steel Co., George D. Ramsay, vice pres. Operation, Box 8087, 4152 Mockingbird Lane, c.i. pipe foundry, force account. **$1,000,000.** CD 11/11.

**Tex., Dallas**—SALES and SHOP—Nash Sales & Service, 2727 Mockingbird Lane, auto service shop sales own forces. Approx. **$80,000.** Phil T. Crown, 1335 Plowman St., archt.

**Tex., Diboll**—PLANT—Southern Pine Lumber Co., Lufkin, plant for making concrete pipe, fabricate fdns. and footings, to Arthur Temple Assoc., Lufkin. Approx. **$90,000.**

**Tex., Houston**—WAREHOUSE—Hyman & Aaron Finger & Assoc. 1601 San Jacinto St., Warehouse 3, own forces. **$175,000.** CD 6/3.

**Tex., Houston**—WAREHOUSE—Laden & Lieberman, N. Esperson Bldg., design and construction warehouse to Commercial Engineers & Builders, c/o owners. Approx. **$86,000.**

**Tex., Houston**—WAREHOUSE—Damon Wells, 2107 McKinney St., 100x250 ft. masonry, concrete footings warehouse, concrete beam and slab fdn., to Robert H. Smith Constr. Co., 2301 Telephone Rd., Approx. **$75,000.** CD 2/11/48.

**Tex., Kaufman**—PLANT—Ralston Purina Co. (sponsors), 835 S. 8 St., St. Louis, Mo., chicken hatchery plant, Purchase and Hire. Approx. **$75,000.**

**W. Va., Weirton**—COKE OVENS—Weirton Steel Co., Weirton, battery of coke ovens, alterations and extens. of byproduct and benzol plants, to Koppers Co., Inc., Koppers Bldg., Pittsburgh Pa.

**Wis., Laona**—WAREHOUSE, etc.—Connor Lumber & Land Co., Laona, 1 story, 85x200 ft. warehouse addn., alterations, concrete fdns., floors, day labor. G. A. Krasin, 505 S. Chestnut St. Marshfield, archt.

**Wis., Milwaukee**—BREWERY—Milller Brewing Co., 4002 W. State St., Zone 8, 2 story, 20x105 ft., steel, brick brewery addn., alterations, concrete fdn and floor, to Walter W. Oeflein Inc., 5345 N. Hopkins St., Zone 9, **$75,000.** G. C. Lefebvre & D. C. Wiggins, 6408 N. Richards St., Zone 11, archts.

**Wis., Milwaukee**—WAREHOUSE, etc.—The Texas Co., 300 Baker Bldg., Minneapolis, Minn., 1 story 80x174 ft. warehouse, 1 story, 46x50 ft. repair shop, 1 story, 10x28 ft. and 28x10 ft. office and truck filling platform, 1 story, 20x30 ft. foam house, brick, steel, concrete fdns., to Meredith Bros., Inc., 121 E. Washington St., Zone 4. Approx. **$196,500.** Bids 11/15. CD 11/1.

**B.C., Vancouver**—PLANT—Sun Publishing Co., Ltd., 500 Beatty St., bsmnt., main floor and mezzanine 76x176 ft., rein.-con. L-shaped newspaper publishing plant, to Commonwealth Constr. Co., Ltd., 670 Taylor St. Approx. **$230,000.** Bids 1/7, awarded 1/27. CD 12/30.

**Ont., Hamilton**—SERVICE STATION—Sun Oil Co., Ltd., 39 Basin St., 2 garage service stations, 1 on Main and Newton Sts., and other King and Emerald Sts., own forces. Approx. **$70,000.** J. E. Smith, 16 Wexford St. W., archt.

**Ont., Toronto**—PLANT—Gair Co., Canada Ltd., 372 Bay St., dominion mills division plant to provide for new heater bldg. and paper storage warehouse, to Finley W. McLachlan, Ltd., 195 Fairbank Ave. Approx. **$175,000.** D. Shepherd & R. W. Powell, 57 Bloor St., engrs. CD 7/9/47.

**Que., Montreal**—WAREHOUSE—Hudon & Orsali Ltd., 105 St. Paul St., grocery warehouse, to Foundation Co. of Canada Ltd., 1900 W. Sherbrooke St. Approx. **$400,000.** Morin & Cingmars, 84 W. Notre Dame St., archts.

## UNCLASSIFIED

### BIDS ASKED

**Massachusetts**—TRAFFIC SIGNALS—B.A. 2/14—Commonwealth of Mass., Dept. P. Wks., 100 Nashua St., Boston, furnishing, installing traffic signals, Belchertown, East Longmeadow and West Springfield; Blandford, Great Barrington, Otis, Richmond, Sheffield, West Stockbridge. Plans deposit $5 each. P. H. Kitfield, ch. engr.

**Ill., Skokie**—BATH HOUSE, etc.—B.A. 2/15—Evanston Golf Club, 440 W. Dempster St., bath house, swimming pool and pavement, $250,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Zone 3, archts.

**B. C. Victoria**—WHARF—B.A. 2/15—R. Portier, acting secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstr. and adjacent to Johnston St. Bridge. Approx. $125,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 6/29/44.

**N. B., Richibucto**—WHARF—B.A. 2/15—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf imprvs. Approx. $135,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 10/18/43.

**Mich., Detroit**—LIGHTING, etc.—B.A. 2/16—State Hy. Dpt., Lansing, constr. and relocate of city lighting and power facilities altering water sys. on John C. Lodge Expressway from Brainard to Perry Sts., at Grand River Ave., U1 82-127, C22 (U1-404 (18), Part 2, **$130,000.** Plans deposit $3. CD 3/30/43.

† **N. C., Fort Bragg**—BLEACHERS—B.A. 2/16—U. S. Eng., 308 Customhouse, Wilmington, concrete bleachers, at Bowley Field, Serial No. Eng-31-075-50-2. CD 1/20.

**O., Cincinnati**—CARNIVORA BLDG., etc.—B.A. 2/16—Bd. Park Comrs., 2005 Gilbert Ave., 1 story, irregular shape, brick, steel concrete carnivora bldg. and rotunda. $308,005. Kruckemeyer & Strong, 1824 Carew Tower, archts. Wm. E. Ehlers, 1701 Union Trust Bldg., engr. CD 10/11/49, under LB.

† **Washington**—CONTROL HOUSE, etc.—B.A. 2/16—Bonneville Power Admin., Box 3537, Portland 8, Ore., control house and oil house at Olympia Substation, Inv. 4980. Plans deposit $25. L. C. Stewart, c/o owner, engr.

† **Arizona**—STRUCTURAL STEEL—B.A. 2/21—Bureau Reclamation, Dpt. Interior, Phoenix, Ariz., misc. structural steel for Tucson substation, Davis Dam Proj., Spec. R3-PX-35 (Region 3). L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

**Florida**—RURAL DISTRIBUTION SYSTEM—B.A. 2/21—West Florida Electric Co-operative Assn. Graceville, 45 mi. rural distr. line, Jackson Co. Plans deposit $10. E. P. McLean Eng., Co., 815 S. Main St., Moultrie, Ga., engr.

† **North Dakota**—TRANSMISSION LINE—B.A. 2/21—Bureau Reclamation, Dpt. Interior, Bismarck, Jamestown-Edgeley 115-kilovolt and Edgeley-Forman 69 kilovolt, transmission lines, Transmission Div., Missouri River Basin Proj., Spec. 2884. Extended date. CD 1/10.

**Washington**—RURAL DISTRIBUTION LINES—B.A. 2/21 Klickitat County Public Utility Dist., Goldendale, 211 mi. rural distr. lines, Sect. E-2, Klickitat and Skamania Counties. Extended date. H. Zenier & Assoc., Vancouver, engrs. CD 1/18.

† **Washington**—UTILITIES—B.A. 2/21—U. S. Eng., 4735 E. Marginal Way, Seattle 3, Zone 4, utilities for housing and administrative facilities for Chief Joseph Proj., Bridgeport, CIVENG-45-108-50-48. Extended date. CD 1/5, under Sewers, etc.

### LOW BIDDERS

† **California**—TRANSMISSION LINES—Bureau Reclamation, Dpt. Interior, Elverta, Jan. 24, constr. Elverta to Perkins 230 kv double circuit transmission lines Incl. Schedule 1, foundations and steel towers, from Erickson, Phillips & Weisberg, 3341 Telegraph Ave., Oakland, **$170,325;** Schedule 2, stringing conductors and overhead ground wires, Central Valley Proj., Spec. 2867, from Donovan, Inc., 1725 Carroll Ave., and James Constr. Co., 417 Pioneer Bldg., both St. Paul, Minn., **$44,136.** CD 12/23.

† **Calif., Point Mugu**—TANK FARM—Yards & Docks Annex, Navy Dpt., Arlington, Va., Jan. 26, tank farm, four 108,000 gal. steel tanks, eight 27,000 gal. steel tanks, 2 fuel transfer station at U. S. Naval Air Missile Test Center, from C. J. B. Constr. Co., 1618 S. Oxnard Blvd., Oxnard, **$142,000.** CD 1/18.

† **Fla., Cocoa**—INITIAL GUIDED MISSILE LAUNCHING PAD, etc.—U. S. Eng., 575 Riverside Ave., Jacksonville, Zone 1, Jan. 5, constr. initial guided missile launching pad and access roads at Banana River Base, Banana River, Brevard Co., Serial No. ENG-08-123-50-3, from Duval Eng. & Contg. Co., foot of Adams St., Jacksonville, Zone 1, **$221,337.** CD 12/28, under Streets & Roads.

**Kan., Hutchinson**—FIELD HOUSE—City, City Hall, Jan. 18, general contract field house, from L. R. Foy Constr., Hutchinson, **$742,562.** CD 1/11.

**Louisiana**—RURAL DISTRIBUTION LINES—Louisiana Rural Electric Co-operative, Alexandria, Jan. 19, 120 mi. rural distr. lines, Rapides, Avoyelles, Evangeline, St. Landry and Grant Parishes, 1-24.5 KC transmission lines and 8.5 mi. conversion and a 2,000 KV substation from W. S. Young, 519 Gladstone Ave., Shreveport, **$203,025.** Est. $165,000, Freese & Nichols, 407 Danciger Bldg., Ft. Worth, Tex., engrs. CD 1/10.

**Mass., East Boston**—FILL—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Dec. 13, furnish, place fill, Orient Heights Beach, from A. V. Taurasi Co., Inc., 139 Jacques St., Somerville, **$440,625.** CD 4/14/48.

**Mass., East Boston**—STADIUM—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Jan. 24, stadium and recreation area, Airport Approach, East Boston, from Farino Bros., Inc., 61 Bridge St., Newton, **$586,243.** Desmond & Lord, 6 Beacon St., Boston, archts. CD 1/10.

**Mass., East Boston**—WATER DRAINAGE SYSTEM—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Jan. 10, water drainage sys., Orient Heights Beach, from Williams Bros. Constr. Co., 12 Park Lane, East Walpole, **$121,298.** P. H. Kitfield, 100 Nashua St., Boston, ch. engr. Drummey-Duffill, Inc., 80 Boylston St., Boston, engr. CD 4/14/48.

† **Montana**—CIRCUIT BREAKERS—Bureau Reclamation, Dpt., Interior, Bldg., 1A, Denver Federal Center, Denver, Colo., Jan. 24, Schedule 2, two 230/196 kv. circuit breakers, for Hungry Horse Switchyard, Hungry Horse Proj., Coram, Spec. 2860, from Pacific Electric Mfg. Corp., 5815 3 St., San Francisco, Calif., **$121,720.** CD 12/14.

† **Ohio**—RAILROAD RELOCATION—U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va., Jan. 17, relocating Baltimore & Ohio R. R., Dillon Reservoir, grading and appurtenant work, Serial No. CIVENG-46-022-50-41, from Codell Constr. Co., Winchester, Ky., **$935,956.** CD 12/23.

### CONTRACTS AWARDED

**Arizona**—TUNNEL—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix, 1,240 ft. tunnel on U. S. 60 between Superior-Miami Pinal Co., to Fisher Contg. Co., 2201S. 19 Ave., Phoenix, **$579,078.** CD 1/4, under LB.

† **Kentucky**—TRANSMISSION SYSTEM—U. S. Eng., 303 U. S. Court House, Nashville, Zone 1, Tenn., furnishing, del. f.o.b. cars Somerset, Ky., one 15 kv. oilfilled pipecable transmission sys., consisting 6 generator circuits, for Wolf Creek Hydro-electric Power Plant, Cumberland River, Russell Co., CIVENG 40-058-50-15, to E. J. Albrecht Co., 2626 W. 26 St., Chicago, Ill., **$558,719.** Bids 12/14, awarded 12/15. CD 11/16.

▲ **Md., Baltimore**—TROTTING TRACK IMPRVS.—Baltimore Trotting Races, Inc., 210 E. Lexington St., Zone 2, structures for trotting racing track, grand stand, club house, jockey quarters, stables, barns, near here, to Davis Constr. Co., 320 W. 24 St.; grading, to Erhardt & May, 5717 Harford Rd. Total est. **$1,500,000.** Bids 12/12. CD 12/19, under LB.

**Mass., East Boston**—STADIUM—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, stadium and recreation area, General Logan Airport, to Farina Bros., Inc., 61 Bridge St., Newton, **$586,243.** Bids 1/24. CD 1/31, under LB.

**Nebraska**—RURAL DISTRIBUTION LINES—South Central Membership Assn., Nelson, 214 mi. rural distr. lines, Nuckells, Webster and Adams Counties, to M & M Constr. Co., Dwight Bldg., Kansas City, Mo., **$203,043.** Fiora Eng. Co., 1717 E. Colfax Ave. Denver, Colo., engr. CD 4/21/49.

† **Oklahoma**—TRANSFORMERS—U. S. Eng., P. O. Box 61, Tulsa, three 11,600 to 14,500 single phase transformers, for Tenkiller Dam, CIVENG-68, to General Electric Co. Natl. Bank of Tulsa, Tulsa, **$124,380.** Est. $150,000. Bids 1/10, awarded 1/26. CD 1/4.

**Texas**—TRANSMISSION LINES—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, 14 mi. 60,000 volt transmission line, in vicinity of Mission. Approx. **$90,000;** 12,000 volt transmission lines in vicinity Elsa, La Villa, San Carlos, etc. Approx. **$240,000,** Purchase and Hire. CD 1/13.

**Texas**—OIL LINE—Humble Oil & Refining Co., Humble Bldg., Houston, 25 mi. 10 in. crude oil line from near Midland toward Odessa, to Humble Pipe Line Co., Humble Bldg., Houston. Approx. **$175,000.** CD 1/14/49.

**Texas**—GAS LINE—Tennessee Gas Transmission Co., Commerce Bldg., Houston, 27.7 mi. 12 in. gas pipeline between El Campo and Traitor, to Massey Constr. Co., Hy. 9, Corpus Christi. Approx **$324,000.**

**Tex., Houston**—DRIVE-IN THEATRE—Jack Farr, Bryan, 750 auto capacity drive-in theatre, own forces. **$250,000.** CD 1/19.

**Wash. Seattle**—TRANSFORMERS—City, County-City Bldg., one 4, six 70,000 kva. transformers for Ross powerhouse Newhalem, to General Electric Co., River Rd., Schenectady, N. Y., **$747,000.** E. R. Hoffman, city light supt.

▲ **Wash., Seattle**—STADIUM—University of Washington E. 40 St. and 15 Ave. N. E., Zone 5, football stadium addn., to Strand & Son, 3939 University Way, Zone 5, **$1,298,000.** Bids 1/10. CD 1/16, under LB.

**Wisconsin**—RURAL DISTRIBUTION LINES—Wisconsin Electric Power Co., 231 W. Michigan St., Zone 3, power and transmission line in towns of Granville and Milwaukee, Owner builds, **$150,000.** Fred A. Luber, Jr., c/o owner, engr.

† **Wyoming**—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Cody, constr. Boysen-Thermopolis 115 kilovolt transmission line, Transmission Division, Missouri River Basin Proj., near Thermopolis, Spec. 2856, to Reither Constr. Co., Atkin, Minn., **$154,940,** Est. $169,525. Bids 1/4, awarded 1/24. CD 1/11, under LB.

Proposal Advertisements see pp. 98 to 100

## OFFICIAL PROPOSALS

Bids: April 7, 1950 (540)

### *Waterworks Improvements*

MARION, INDIANA

The City of Marion, Indiana will receive sealed Proposals for the Electrification and Modifications of the 7th Street Water Works Pump Station; the furnishing and erection of two Elevated Steel Tanks and Towers on the Water Distribution System; and the construction complete of a 7 M.G.D. Water Filtration Plant, until 10:00 A.M. (Central Standard Time) on the 7th day of April, 1950 at the office of the Board of Public Works, City Hall, Marion, Indiana.

All Proposals received will be publicly opened and read aloud in the Council Chambers at the City Hall, at 11:00 A.M. on April 7, 1950.

The contract documents including plans and specifications are on file and available for inspection at the office of the City Clerk of the City of Marion, Indiana, and at the office of Consoer, Townsend & Associates at 351 East Ohio Street, Chicago 11, Illinois. Copies of documents including plans and specifications may be obtained for review or bidding purposes by depositing $15.00 for proposed Contract No. 1, $10.00 for proposed Contract No. 2, and $30.00 for proposed Contract No. 3, with the City Clerk, for each set of documents so obtained.

The full amount of the deposit for one set of documents and one-half of the deposit for any additional sets of documents will be refunded to each bidder who submits a formal proposal to the City and who also returns the plans (and specifications on additional sets) in good condition within ten (10) days after his bid security has been returned to him.

Equipment manufacturers, sub-contractors, and others who do not submit formal proposals to the City will be refunded one-half (½) the amount of the deposit for all sets of complete documents including plans and specifications returned in good condition to the City Clerk within ten (10) days after the opening of bids. No refund will be made for documents received by the City Clerk after this ten (10) day period.

A certified check or bank draft drawn on a solvent bank in the State of Indiana payable without condition to the City of Marion, Indiana, or a satisfactory bid bond executed by the bidder, and a surety company in an amount not less than five percent (5%) of the bid shall be submitted with each Proposal.

The City of Marion reserves the right to hold the bid security of the three (3) lowest bidders for a period not to exceed thirty (30) days after the scheduled date for opening bids in order to provide sufficient time for the examination and study of said bids. And said City further reserves the right to thereafter hold the bid security of the successful bidder for an additional ninety (90) days in order that the construction financing details may be completed. The actual award of a construction contract will be contingent upon the approval by the Public Service Commission of Indiana of a proposed increase of water rates, and the issuance and sale of Revenue Bonds, all to cover the entire cost of construction of the project and any and all other expenses incident thereto.

The City of Marion reserves the right to reject any or all Proposals and to waive any informalities in bidding.

The successful bidder will be required to furnish a satisfactory performance bond in the sum of the full amount of the contract (or contracts).

The Proposals shall be accompanied by a completely executed State of Indiana Non-Collusion Affidavit, and for any bid of $5,000.00 or more, by the General Form No. 96-A, Standard Questionnaire and Financial Statement for Bidders, as prescribed by the Indiana State Board of Accounts.

Wage rates for this work shall not be less than the prescribed scale of wages as determined pursuant to the provisions of Chapter 319 of the 1935 Acts of the General Assembly of Indiana and subsequent amendments.

In general, the improvement on which Proposals are requested will require the following construction:

CONTRACT NO. 1—Electrification and Modifications of the 7th Street Water Works Pump Station.
CONTRACT NO. 2—The furnishing and erection of two elevated steel water storage tanks and towers each of a capacity of 500,000 gallons.

(Continued on page 99)

# OFFICIAL PROPOSALS

(Continued from page 98)

CONTRACT NO. 3—The construction complete of a water filtration plant of a nominal capacity of 7 million gallons per day including the furnishing and installation of all structures, equipment, certain outside piping, a well supply line, and a sludge disposal line.

Contractors may submit Proposals on any or all of the foregoing Contracts.

Dated at Marion, Indiana,
this 23rd day of January, 1950.
CITY OF MARION, INDIANA
By: ROBERT K. CUSTER, CITY CLERK.

## U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2906) will be received by Bureau of Reclamation, Fort Sumner, New Mexico, March 2, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of Fort Sumner Diversion Dam, Fort Sumner Project, New Mexico. The work is situated about 5 mi. northwest of Fort Sumner, New Mexico. Principal items are approximately: 52,000 cu. yds. of excavation; removing 2,500 cu. yds. of concrete in existing dam; 24,600 cu. yds. of concrete; furnishing and placing 170,000 lbs. of reinforcement; installing 58,000 lbs. of gates and hoists; and other work. Time allowed for completion will be 450 days. For particulars, address Bureau of Reclamation, Fort Sumner, New Mexico; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(544)

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UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2902) will be received by Bureau of Reclamation, Coulee Dam, Washington, February 28, 1950, and then publicly opened for furnishing labor and materials and performing all work for the installation of aluminum crest railing with lighting. The work is situated at Grand Coulee Dam, located about 30 mi. northeast of Odair, Washington. Principal items are approximately: removing temporary railing and electrical materials; installing aluminum crest railings; installing electrical conductors; concrete under crest railings; and other work. Time allowed for completion will be 90 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(543)

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UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2901) will be received by Bureau of Reclamation, Casper, Wyoming, March 2, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of the Alliance-Chadron 115-kilovolt transmission line, Missouri River Basin Project. The work is situated between Alliance and Chadron, Nebraska. The line will be 115-kilovolt, 3-phase, single-circuit, wood-pole, H-frame type, approximately 52 miles long and with 2 overhead ground wires. Time allowed for completion will be 250 days. For particulars, address Bureau of Reclamation, Casper, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(542)

## OFFICIAL PROPOSALS

Bids: February 21, 1950 (546)

### Construction of Substructure

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 21st day of February 1950, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract:

For the construction of substructure, Turnpike Section 31AB, Allegheny River Bridge, part of the Western Pennsylvania Turnpike Extension, in Harmar and Plum Townships, Allegheny County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point on the right descending bank of the Allegheny River, Allegheny County at Turnpike Station 1014 on the Turnpike centerline, thence in an Easterly direction across the Allegheny River to Turnpike Station 1037 on the Turnpike centerline, a distance of .4356 miles.

The approximate quantities of the principal items are as follows:

Class 1B Excavation, 6,570 cubic yards; Class 2 Excavation, 2,440 cubic yards; Class 2A Excavation, 10,380 cubic yards; Cast in Place Concrete Piles 14" Dia., 1,004 lineal feet; Class A Concrete, 2,247 cubic yards; Class B Concrete, 7,556 cubic yards; Special Stone Faced Ashlar Masonry, 6,422 cubic yards; Reinforcing Bars, 135,300 pounds; Fabricated Structural Steel, 129,330 pounds.

In general, the principal parts of the work include:

(a) Pier and Abutment Excavation
(b) Pile Driving
(c) Construction of Stone-faced and concrete masonry bridge substructure.

Copies of plans, specifications, an dother contract documents are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on 7 February 1950. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

Plans and contract documents, exclusive of specifications may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Penssylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
1 February 1950

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Bids: February 21, 1950 (545)

### Construction of Extension to Turnpike Arch

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 21st day of February 1950, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud, for the following contract:

For the construction of a seventy-five (75) foot extension to an existing Turnpike Arch and the necessary excavation, clearing and grubbing, and channel change. This work is situated as follows:

At a point approximately 0.8 miles West of the East Borough Line of New Baltimore in the vicinity of East Bound Mile Post 61, and to the left of Centerline between Station 1559+75.6 to 1560+73.0 in Allegheny Township, Somerset County.

The approximate quantities of the principal items are as follows:

Class 1 Excavation, 100 cubic yards; Class 2 Excavation, 570 cubic yards; Class A Concrete, 430 cubic yards; Class B Concrete, 570 cubic yards; Steel Reinforcing Bars, 69,663 pounds.

Copies of plans and specifications are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on 6 February 1950. Plans and specifications will not be available before this date for inspection or for mailing to prospective bidders.

Plans and specifications may be obtained from the Commission upon deposit of ten ($10.00) dollars, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

The character and amount of bid security to be furnshed by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
1 February 1950

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Bids: February 20, 1950 (538)

### Reconstruction of Expansion Dams and Interior Lanes

THE DELAWARE RIVER JOINT
COMMISSION
Administration Building
Camden, New Jersey

Sealed bids will be received for reconstruction of existing expansion dams and resurfacing the six interior lanes of roadway on the Philadelphia and Camden Approaches of the Delaware River Bridge between Philadelphia, Pa. and Camden, New Jersey, to be identified as *Contract No. 7*, at the office of the Secretary of The Delaware River Joint Commission, Administration Building, Bridge Plaza, Camden, New Jersey, until 1:30 P. M. Eastern Standard Time, Monday, February 20, 1950 and then and there will be publicly opened and read.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified or cashier's check in the sum of $20,000 payable to The Delaware River Joint Commission and drawn upon a national or state bank or trust company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and the surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Commission will afford prospective bidders an opportunity to inspect the work to be done.

The right is reserved to reject any or all bids.

THE DELAWARE RIVER
JOINT COMMISSION
JOSEPH K. COSTELLO
*SECRETARY.*

(Continued on page 100)

## U. S. Government

(Continued from page 99)

Department of Commerce, Bureau of Public Roads, January 26, 1950. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 10:00 a.m., E.S.T., March 2, 1950, for Project 1W2, Blue Ridge Parkway, Grayson County, Virginia. Reinforced concrete structure (0.023 mile), Reconstruction on State Route 89 (0.215 mile). The approximate quantities of the more important items are 19,100 cu. yd. Excavation, 1,940 cu. yd. Cement Concrete, 165,000 lb. Reinforcing Steel and 585 cu. yd. Stone Masonry. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or certified check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, Specifications and Proposal forms may be obtained at the address given above, or at Bureau of Public Roads, 410 State and City Office Building, Roanoke, Virginia. H. J. Spelman, Division Engineer. (541)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Improvement on Red Lake River, Minnesota, Stage No. 3, will be received in this office until 11:00 A.M., C.S.T., 21 February 1950 and then publicly opened. Further information upon application. (576)

## OFFICIAL PROPOSALS

Bids: February 20, 1950 (539)

### *Hudson River Pumping Plant*

CONTRACT 427

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Monday, February 20, 1950, for Contract 427, for designs, construction and installations necessary to establish at Shaft 6 of the Delaware aqueduct, complete with all equipment and appurtenances and ready for use, an electrically-operated or a direct-connected, Diesel-operated pumping plant capable of pumping 100 million gallons per day of water from the Hudson river into the Delaware aqueduct against a head of 600 feet, and a chlorinating plant capable of satisfactorily sterilizing the pumped water before it enters the aqueduct, together with suitable buildings for housing said plants; and for the operation of said plants for a period not to exceed four months subsequent to their completion, all located near Chelsea, Town of Wappinger, Dutchess county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of one hundred and fifty thousand dollars ($150,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

(Additional Proposals on page 107)

## *WANTED*

## ENGINEER

**to supervise design for major city street paving and drainage programs. Must be graduate engineer, not less than five years experience in this field, fully qualified to assume direct charge under chief engineer. Immediate. Salary commensurate with qualifications. Permanent employment in Gulf Coast Area. Reply P-2153.**

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## DESIGNING ENGINEER

**structural; bridges, tunnels, and other heavy structures. Graduate engineer, not less than ten years experience. An excellent opportunity and a permanent position for right man. Salary commensurate with qualifications. Location on Gulf Coast. Reply**

**P-2154,** Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

## WANTED

## MECHANICAL ENGINEER

**Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.**

**P-2062,** Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

## WANTED

## RIGGER FOREMAN

**For dam, powerhouse and similar heavy construction work, by large contractor operating throughout the Middle West and East. Preferably iron worker or carpenter by trade. Permanent position for first-class man, who must have at least five to ten years' experience with leading contractors along identical lines. Salary $175.00 per week. In replying state age, education, experience (including names of last three employers who will not be contacted without your previous consent) and present salary.**

**P-2098,** Engineering News-Record
520 N. Michigan Ave, Chicago 11, Ill

## SUPERINTENDENT/MANAGER

**Expanding construction firm located in Northern Ohio specializing in Water and Sewage Treatment Plants has opening for A-1 project superintendent or manager. Give age, experience, references, and salary expected. Also include photograph if possible.**

**P-2069,** Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

## STRUCTURAL STEEL ESTIMATOR

**Well known New England fabricating company has an exceptional opening for young experienced structural steel estimator. A real opportunity exists for a man with estimating and sales ability. Give in detail experience, education, etc. References will be required. Replies held strictly confidential.**

**P-2133,** Engineering News-Record
330 West 42nd St., New York 18, N. Y.

***REPLIES (Box No.): Address to office nearest you***
***NEW YORK: 330 W. 42nd St. (18)***
***CHICAGO: 520 N. Michigan Ave. (11)***
***SAN FRANCISCO: 68 Post St. (4)***

## *POSITIONS VACANT*

CONTRACTOR'S ENGINEER — Estimator. Thoroughly experienced in office and field in heavy construction work. Eastern area. Write full qualifications and salary, experience. P-1934, Engineering News-Record.

WANTED, SEVERAL engineering graduates, under 35, by large industrial fire prevention organization maintained by national insurance group for field work involving periodic inspections and special consulting service. Permanent. P-1994, Engineering News-Record.

CHIEF ESTIMATOR capable of taking charge of estimating department for general contractor in Northwestern Ohio. In replying give full qualifications, experience and salary wanted. Address P-2033, Engineering News-Record.

STRUCTURAL CHECKER-detailer. All type structures. State qualifications, availability. Location East. P-1818, Engineering News-Record.

PUBLIC WORKS Engineer. For responsible charge of department. Must be aggressive contact man for new business and have solid design experience in water, sewer, structural, etc. Location Atlanta and only applications from South considered. P-2222, Engineering News-Record.

WANTED: REGISTERED Engineer for work in Ohio, with building construction firm, 30 years in business, specializing in factory, mill and commercial buildings. Prefer man with experience in estimating, buying, and some sales experience. Firm does, roughly, $2,000,000.00 of business a year, consisting of heavy concrete work, structural steel, masonry and carpentry construction. P-2230, Engineering News-Record.

ESTIMATOR WANTED by General Contracting Firm located in Kansas. Applicant to be under 45 years of age, experienced in estimating all types of General Building Construction. If interested, advise age, education, experience and salary desired. P-2099, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

CARPENTER SUPERINTENDENT, for form construction on concrete dam located in Western Kansas. State age, experience, and salary expected. Elmer C. Gardner, Inc., P. O. Box 252, Ellis, Kansas.

CONSTRUCTION SUPERINTENDENT experienced in handling large private multiple housing project. Work located in Ohio. Give qualifications, references, salary expected and enclose recent photograph. Steady job for the right man. P-2194, Engineering News-Record.

DETAILER EXPERIENCED in preparing details for structural steel for bridges and buildings. Steady employment with one of the largest steel fabricators in the Southwest. State experience, references, age and salary requirements. P-2139, Engineering News-Record.

## *SELLING OPPORTUNITY OFFERED*

YOUNG SALESMAN wanted for construction equipment in Metropolitan area on commission basis. Car and expenses will be provided. Apply SW-2207, Engineering News-Record.

DISTRICT SALES Manager wanted for eastern territory, New York headquarters, handling construction equipment. Permanent connection. Give experience and salary expected. Write SW-2213, Engineering News-Record.

(Continued on page 101)

## WANTED—SALES ENGINEER

**For established firm in the Pittsburgh district making materials used widely in bridge construction and industrial plants. Must be experienced and preferably have civil engineering education.**

**P-1881,** Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

## MECHANICAL DETAIL ASSIST.

**Expanding construction firm located in Northern Ohio specializing in Water and Sewage Treatment Plants has opening for mechanical detail assistant. State age, experience, references, salary expected and include photograph if possible.**

**P-2070,** Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

## ESTABLISHED 57 YEARS

POSITIONS IN

| | |
|---|---|
| Engineering | Appraisals |
| Architecture | Chemistry |
| Manufacturing | Teaching |
| Contracting | Mining |
| Metallurgy | Sales |

Our many years of specializing in Engineering and Technical help enables us to number among our clients the most desirable employers and to place at your disposal a most attractive method of getting in touch with parties needing men of your qualifications.

**THE ENGINEERING AGENCY INC.**
53 W. Jackson Blvd. Chicago 4, Ill.
Room 1662 Harrison 7-4056

### POSITIONS WANTED

(Continued from page 100)

EXPEDITER AND/or Scheduling Engineer. Over 15 years diversified experience; Industrial, Commercial, Governmental, and Institutional expansion programs. Guarantee satisfactory service and excellent past record. PW-2071, Engineering News-Record.

CHIEF ESTIMATOR for General Contractor Available. Experienced all types General Construction. Current volume $60,000,000 per annum. Base salary $12,000 per year. Excellent references. PW-1813, Engineering News-Record.

CIVIL ENGINEER — Executive. Registered P.E., N.Y. Thirty-five years broad experience, about twenty of which in responsible charge field and office on highways, municipal and general construction in Latin America and Far East. Fluent Spanish. Excellent credentials. Available for foreign assignment. Thuman, P.O Box 126, Merrit Island, Fla.

ENGINEER SPECIALIZED in design of reinforced concrete under heat, inclusive atomic pile. PW-2136, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT over 17 years experience as superintendent on all types of buildings and bridges, aggressive and producer, graduate engineer, practical experience covers complete work, sober, married with family, prefers midwest location. Address PW-2197, Engineering News-Record.

SANITARY ENGINEER Illinois and Indiana registration. Complete knowledge of business management, industrial waste and water surveys, design of water treatment and waste treatment plants; supervision of construction. Have vast knowledge regarding utilities operations and problems and have at present a large volume of national and international business contacts. Address replies to PW-2017, Engineering News-Record.

MANAGER OR Superintendent. Dams, Bridges and Marine Construction. Twenty-five years experience. Practical and engineering background. Member ASCE. Available soon. PW-2115, Engineering News-Record.

STRUCTURAL DESIGNER—B.C.E., Age 25, Single. Four years experience designing reinforced concrete and structural steel industrial buildings. Prefer eastern location. PW-2114, Engineering News-Record.

CIVIL ENGINEER-Executive Registered. 15 years diversified field and office experience, specializing in administration and contractural relations on buildings, bridges, roads, and utilities. Available March 1st. PW-2145, Engineering News-Record.

CONSTRUCTION SUPT.; 32; registered Civil Engineer. Diversified experience includes field supervision of heavy and building const. presently estimating. Desire affiliation with general contractor where opportunity exists for responsible const. supt. position. PW-2130, Engineering News-Record.

CONSTRUCTION EXECUTIVE: Graduate Civil Engineer M' A.S.C.E., age 39, sixteen years experience with Architects-Engineers and Army Engineer offices on hospitals, buildings and outside utilities. Desires position with firm needing experienced construction executive. Salary $8,000. Location South or West. PW-2199, Engineering News-Record

**FLORIDA IS GROWING**

Constr. office mgr. — Accountant, 15 years general construction — 5 years Florida, 2 years Caribbean area — offers services to contractor wishing to establish in Florida or Caribbean area. Knows citrus grove development work thoroughly, good opportunity exists in this field now.

PW-2231, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

# SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :USED OR RESALE

**UNDISPLAYED RATE**

*(Not available for equipment advertising)*

$1.20 a Line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

*Box Numbers* in care of our New York, Chicago and San Francisco Offices count as one additional line.

*Replies* are forwarded each day as received at each of the offices mentioned without additional charge.

*Discount* of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

**DISPLAYED RATE**

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

*An advertising inch* is measured ⅞ inch vertically on one col., 3 col.—30 inches to a page. E.N.R.

New advertisements received by February 13th will appear in the February 23rd issue.

### POSITIONS WANTED

OWNERS REPRESENTATIVE. Guarantee contractor's complete compliance with owner's requirements. Over 15 years experience; including construction superintendent with reputable contractors and major industries. PW-1894, Engineering News-Record.

CIVIL-STRUCTURAL Engineer, 38 yrs. of age, wide experience in design and supervision of construction industrial, commercial and institution buildings, municipalities and water front structures. Available for position of project, resident or city engineer. PW-2092, Engineering News-Record.

BUILDING SUPERVISOR, Party Chief, Architects Representative—wants work in Latin America with contractor or architect. A-1 reference. Single—age 46. Box 301, Coral Gables, Florida.

ATTENTION CONTRACTOR — Project Manager - General Superintendent - Construction Superintendent desires connection. Graduate Registered Civil Engineer. Twenty-two years diversified experience—Bridges, dams, power plants, industrial plants, sewerage disposals, sewers, tunnels, heavy foundations, coffer dams, pile driving, and housing developments. Labor relations expert. Energetic, best of health. Available immediately. Resume of experience and references furnished. PW-2204, Engineering News-Record.

STRUCTURAL STEEL Engineer with M.S. Degree. One year's experience in buildings, bridges design and construction. Age 25, single, looking for position with a future. PW-2243, Engineering News-Record.

CHIEF DRAFTSMAN, Structural, desires connection fabricating shop. Thoroughly experienced shop standards. Capable organizing and producing drawing room results. PW-2240, Engineering News-Record.

SPECIFICATION WRITER: Available 1 March 1950 or sooner. 19 years in construction work. Experience covers specifications, contractural relations, appraisals, supervision, inspection, cost engineering, take-off, buying material control, etc. Free to travel. PW-2193, Engineering News-Record.

CONTRACTOR'S ASSISTANT. Graduate Civil Engineer M' A.S.C.E., age 39, sixteen years of civil engineering and building construction experience. Desires position with general building contractor as assistant handling estimating and office engineering. Salary $7500. Location South, West or Midwest. PW-2200, Engineering News-Record.

STRUCTURAL ENGINEER, P.E. N.Y., Graduate, 34. 13 yrs. industrial buildings; power plants; paper, chemical plants—reinforced concrete, structural steel. Design, estimates, specifications, field surveys and inspection. PW-2246, Engineering News-Record.

ARCHITECT - EXECUTIVE. Contact man. Architect with broad executive experience in the office of architects, engineers and contractors. Top firms. Public relations. Contact man for clients and prospective clients. Extensive experience in obtaining new business. PW-2168, Engineering News-Record.

### PART TIME WORK WANTED

CIVIL ENGINEER—specializing in building frames desires structural design and plan preparation work for spare hours. Registered P.E. in Pennsylvania where located. Cornell graduate. PTWW-2205, Engineering News-Record.

**"WE HAVE FED MILLIONS"**

30 Years Experience in the

**HOUSING and FEEDING of MEN**

Valentine B. Kane & Assoc.
1410 State St. New Haven 11, Ct.

### PART TIME WORK WANTED

SUBDIVISION MAP Draftsman and Computors. Metropolitan New York. Full or part time. PTWW-2226, Engineering News-Record.

### SELLING OPPORTUNITY WANTED

SALES ENGINEER. Over 17 years diversified engineering experience, including management of construction for Commercial, Industrial, and Governmental work. Prefer sales. Guarantee excellent past record and future results. SA-2072, Engineering News-Record.

### BUSINESS OPPORTUNITY

**All or part**

of specialized contracting business operating throughout United States, past earnings from $25,000.00 to $75,000.00 yearly. Attractive proposition to capable construction man with financial responsibility. BO-1986, Engineering News-Record.

**Associate Wanted.**

Partner or associate wanted by consulting firm in eastern Rocky Mountain region. Only capable and experienced engineer considered. Cash equity required to demonstrate intent. Practice is in municipal engineering, industrial and private building; and general civil, structural, and architectural work. A fine opportunity for the right man. BO-2212, Engineering News-Record.

**Will buy**

long established and active land surveying business. Substantial proof to volume of business, etc. BO-2241, Engineering News-Record.

**FOR SALE**

**Complete bargain price $3750.00**

Brand New Chicago Diamond Drill, 25 horse Hercules motor. Hydraulic swivel head. 205 ft. N drill rods, lifting bail, 6 ft. drill collar, water swivel, 38 ft. high pressure hose, 2 roller rock bits and adapter, 24 ft. derrick mounted on 1945 Dodge four wheel drive truck.

FRANK ZOWASKI
Box 127 New Hampton, New York

**BARGAIN**

**TIMBER, PILING, PLANKING**

Jack hammers, pumps, chain saws, chain hoists.

SHURTER LUMBER & PILING CO.
Samsonville, New York

**STRIPPING SHOVEL**

Osgood 1006 General 3/4 yd. shovel;
Osgood 1-1/4 yd. dragline;
Caterpillar D-8 bulldozer;
Pioneer core drill;
Single drum hoist with engine;
And 50 ft. crane boom for P & H 1 yd. crane.

MICHAEL BERNHARDT
Ph. 338 Coshocton, Ohio

**FOR SALE**

**COMPLETE GUNITE RIG**

TRUCK MOUNTED 315 SCHRAMM DIESEL, TRAILER, MIXER, N-2 GUN, HOSE, PUMP, ETC. HIGHLY MOBILE

Box 12271, Houston 17, Texas

## AVAILABLE FOR LEASE

**The Government Owned Industrial Reserve Forge Plant**

**Berkeley, California**

The Commandant, Twelfth Naval District, acting for the Chief of the Bureau of Yards and Docks, invites proposals for the leasing of the facilities at the Naval Industrial Reserve Forge Plant (Formerly American Forge Company), Berkeley, California. This plant, built during World War II for forging ingots into ship propeller shafting, large engine crank shafts, etc., contains extensive areas suitable for other industry, warehousing, or similar activity.

***Description:***

This facility consists primarily of a two-story office building containing 5,750 square feet of floor space and a steel and transite main forging building having 77,000 square feet of floor area, and housing a three thousand ton forging press together with the necessary furnaces, cranes, handling, cutting and other appurtenant equipment; a boiler room housing three 400-H.P. boilers; a handling yard with spur tracks, crane, fuel and water storage and pumping facilities, adjacent to the main forge building.

***Location:***

The plant is situated on a 2.94 acre tract on Ashby Avenue just East of East Shore Highway in Berkeley, California.

***Access:***

The plant is served by two spur tracks of the Southern Pacific railway main line. Truck access is by paved streets of the Berkeley highway system.

***Utilities and Services:***

Electric light and power, water, gas and sewage systems are installed and connected to the systems servicing the municipality.

***General Information:***

The property will be leased pursuant to the Act of 5 August 1947 (Public Law 364—80th Congress—First Session), subject to such restrictions as the Navy may deem necessary or desirable to retain the forging capacity of the plant. Leasing will be subject to Congressional approval.

Proposals contemplating the use of these facilities for their intended purpose are especially solicited, and will be given preference over those contemplating other uses. Proposals to lease the plant, in whole or in part, for any purpose not inimical to its status as a Navy standby facility will be considered, but the right to reject any or all proposals is reserved.

Written proposals, in duplicate, for the leasing of these facilities will be received by the Commandant, Twelfth Naval District, Federal Office Building, San Francisco 2, California, until 23 February 1950. The prospective lessees may inspect the premises or secure additional information concerning the property by application to the Commandant at the above address.

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## U. S. Government

(Continued from page 100)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Upper Approach Channel Dredging, Lock and Dam No. 10, Mississippi River, Guttenberg, Iowa, will be received in this office until 11:00 A.M., C.S.T., 23 February 1950, and then publicly opened. Further information upon application. (577)

## OFFICIAL PROPOSALS

Bids: February 20, 1950 (529)

### Construction of a House Sewer

CORPORATION NOTICE
CITY OF YONKERS

PROPOSALS FOR THE CONSTRUCTION OF A HOUSE SEWER IN SUNNYBROOK —SECTION ONE BETWEEN PALMER ROAD AND CENTRAL PARK AVENUE.

Office of the
Board of Contract and Supply
Yonkers, New York January 20th, 1950.

Pursuant to Special Ordinance No. 5, 1949, sealed proposals will be received at the Office of the Secretary of the Board of Contract and Supply, Room No. 316, City Hall, Yonkers, New York, until 2:00 o'clock P. M., (EASTERN STANDARD TIME) Monday, February 20th, 1950.

Copies of Information for Bidders, Form of Proposals, Form of Contract, including Specifications for the aforesaid Sewer may be obtained at the Office of the Board of Contract and Supply, and only bids made upon said forms will be accepted. Copies may be obtained upon deposit of $10.00 (CASH OR CERTIFIED CHECK) which will be refunded to each bidder who bids, or returns the Specifications unused, within Ten (10) days after the opening of Bids.

Dated: January 20th, 1950.
FRANK VAN BLARCOM
Secretary of the Board of
Contract and Supply

## OFFICIAL PROPOSALS

Bids: March 1, 1950 (525)

### State Road Work

*NOTICE TO CONTRACTORS:* STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63, Laws of 1936, as amended, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on March 1, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

| County | Contract No. | Name | Miles | Type | Deposit | Estimated Cost of Work |
|---|---|---|---|---|---|---|
| DISTRICT No. 3<br>WM. ROBINSON, Dist. Engr., 301 E. Water St., Syracuse, N. Y. | | | | | | |
| **Onondaga** | FG C 50-3<br>FG RC50-2<br>FG RC SS50-3 | Elim. of Grade Xing of the N. Y. C. R. R. with: City of Syracuse: James St.; Eastwood Village, S. H. 896; James St., S. H. 9; Thompson S. H. 429 & Thompson Road, D. A. S. S. 43-4 Proj. No. UG 1094(1) | 0.95 | 9" Cem. Conc. Pavt. 52' & Var. Widen.= 0.40 Mi. Asp. Conc. Type 2A = 0.55 Mi. Alpha I-Beam 64' 6" Alpha $250 | $50,000<br>Plans $10 | $860,000 |
| DISTRICT No. 4<br>A. R. MULLIGAN, Dist. Engr., Barge Canal Term., Rochester, N. Y. | | | | | | |
| **Genesee** | **FAC 50-4** | Batavia City: Main St., Proj. No. U706(3) | 0.79 | Traffic Signal System | $1,000<br>Plans $5 | $19,000 |
| DISTRICT No. 7<br>R. F. HALL, 444 VanDuzee Street, Watertown, N. Y. | | | | | | |
| Jefferson | PSC 6591 | Elim. of Grade Crossing of the N. Y. C. R. R. and West Main St.: City of Watertown | 0.23 | 8" Cem. Conc. Pavt. 2 at 24' Wide I-Beam, 2 Span 32' Each | $26,000<br>Plans $20 | $490,000 |
| DISTRICT No. 8<br>J. S. BIXBY, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y. | | | | | | |
| Rockland | FASS 50-2<br>RC 50-4 | New Hempstead Road-Roberts Road; Coyles Corners-Short Clove, S. H. 9005 Proj. S 311(1) | 2.60 | Asphalt Conc. Opt. | $21,000<br>Plans $10 | $360,000 |

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

# MARION 362

**All-Purpose 1-½ Cu. Yd.**
**machine with a**
**PROVEN RECORD**
**of outstanding performance**

## SOME MARION 362 FEATURES

**VERSATILE**—Easily convertible front-end equipment for shovel, dragline, clamshell, crane, pull shovel, drop ball and grapple service. Conversions made quickly in field. No machinery changes except for drum laggings and sprockets.

**SMOOTH CLUTCHES**—Smooth, positive clutch action over the years. Swing, propel and crowd retract clutches never require adjustment; hoist and crowd-out clutches have only one adjustment.

**MARION AIR CONTROL**—Compensating-type air control valves yield full machine power when 12 pounds of pressure is applied to control levers. No production lag because of operator fatigue. Air control eliminates levers, bell crank, toggles, pins, etc.

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**POWER SHOVEL COMPANY**
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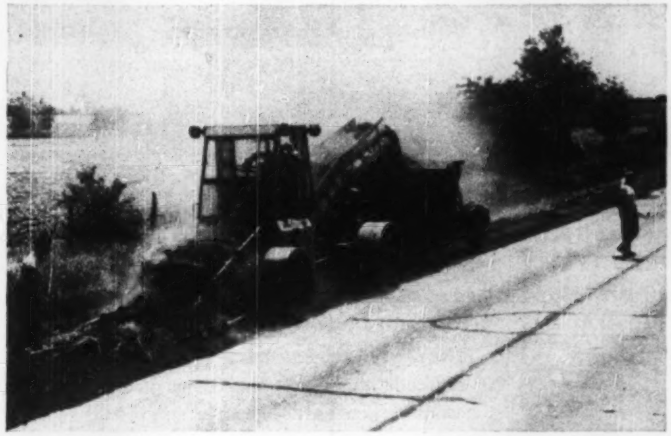
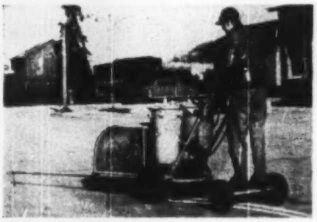
*Offices and Warehouses in all Principal Cities*

# NEW PRODUCTS



**Gasoline-Powered Belt-Type Loader Is Self-Propelled and Self-Fed**

Adams TraveLoader picks up and loads dirt, sod, sand, gravel, oil-mix, surplus scarified material, snow and other types of material which can be windrowed and which will travel up a conveyor belt. The revolving feeder (which has 12 curved and beveled-edge blades) moves material up a metal pan and onto the revolving conveyor belt. The feeder is hinged at the rear and is free to float in order to adapt itself to any size windrow. Rear section of conveyor is adjustable to provide a wide range of discharge heights. The TraveLoader is powered by an International tractor-type gasoline engine. With auxiliary transmission, travel speeds can be varied from 0.42 to 26.4 mph.—J. D. ADAMS MFG. CO., INDIANAPOLIS 6, IND.



### Safety-Line, Stripe Marker

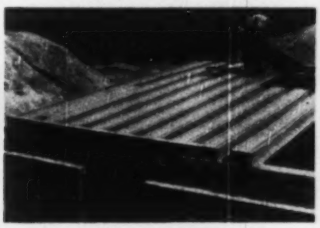
New line of street, highway, and industrial markers includes the Super 10 self-contained and self-propelled highway marker for striping all types of traffic lines; the Super 4 self-propelled safety-line street marker; and the No. 5 safety-line marker, electric or gasoline driven, for street or industrial-plant striping or spray painting. All street and highway models are available with bead dispenser attachment. (Model shown is the Super 4).—MEILI-BLUMBERG CORP., NEW HOLSTEIN, WIS.

### Built-Up Aluminum Roofing

Rey Kool 19-in. Selvage built-up roofing consists of two layers of felt protected on top by a layer of aluminum. It is constructed on a 17½-in.-wide sheet of stipple-embossed aluminum, factory laminated to a 36-in. width of 15-lb. asphalt-saturated roofing felt. Laid according to conventional practice, each course covers an area 36 in. wide with 17 in. of exposed aluminum. Succeeding courses are lapped over the bare felt and ½-in. of aluminum, leaving 17 in. exposed. Rey Kool roofing weighs 40 lb./square, and is distributed in 40-lb. rolls containing 72 lineal ft.—REYNOLDS METALS CO., BUILDING PRODUCTS DIVISION, 2000 S. 9TH ST., LOUISVILLE, KY.

### Rust-Inhibitive Paint

Protective-coating compound is based on specially selected copolymers as binders and rubber derivatives as plasticizers. Kem-Ban results in a protective coating which is fire retardent and which has sufficient coefficient of expansion to resist checking, peeling, or cracking. Kem-Ban can be applied by spray, dip, or brush methods, and dries in from 20 to 30 min. Can be applied to metals, wood, and other materials. It is suitable for use as a sealer for hot plaster, stucco, cement, and concrete. Kem-Ban can be applied directly over metal without previous surface preparation.—ACE LABORATORIES, 1614 COUTANT AVE., LAKEWOOD 7, OHIO.

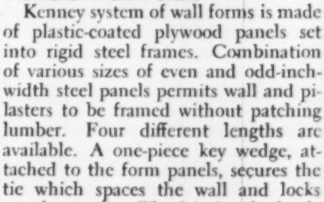


### Steel Cellular Panels

Construction of sub-flooring is speeded by use of Fenestra steel cellular panels, which also serve as ducts for hot-air distribution and cold-air return of heating systems. Heat passing into panel cells is radiated through the floor and also flows out of registers at the baseboards. Panels can be laid from beam to beam, eliminating joists.—DETROIT STEEL PRODUCTS CO., 2250 E. GRAND BLVD., DETROIT 11, MICH.

### Membrane Curing Compounds

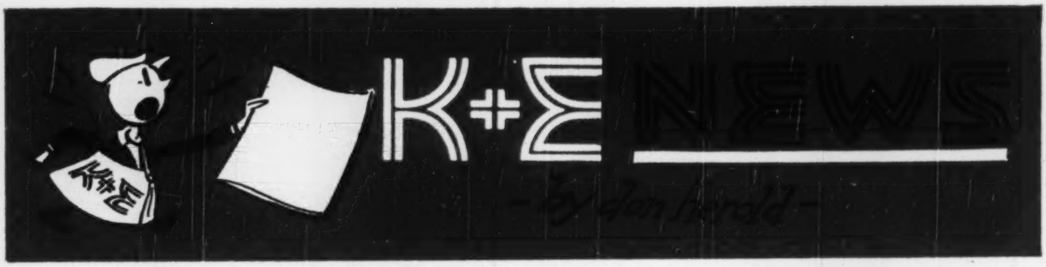
Membrane compounds, applied by spraying, are designed to form an impervious film which seals in mixing water for proper curing of concrete surfaces. Permite V-167 is recommended for all horizontal concrete surfaces, and for vertical surfaces below ground. Permite V-169 is recommended for all vertical concrete surfaces where non-discoloration is an important factor. Permite compounds dry to touch in 30 to 60 min. Horizontal coverage is 200 sq. ft./gal.—ALUMINUM INDUSTRIES, INC., 2438 BEEKMAN ST., CINCINNATI 25, OHIO.

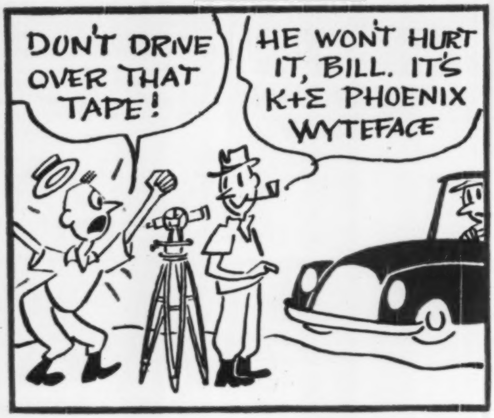


### Flexible Wall Forms

Kenney system of wall forms is made of plastic-coated plywood panels set into rigid steel frames. Combination of various sizes of even and odd-inch-width steel panels permits wall and pilasters to be framed without patching lumber. Four different lengths are available. A one-piece key wedge, attached to the form panels, secures the tie which spaces the wall and locks panels together. The 3-in-1 waler hook,

*(Continued on page 113)*



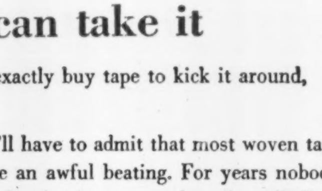

DON'T DRIVE OVER THAT TAPE!
HE WON'T HURT IT, BILL. IT'S K+E PHOENIX WYTEFACE

## tape that can take it

You don't exactly buy tape to kick it around,

BUT—

—BUT you'll have to admit that most woven tapes do have to take an awful beating. For years nobody has come up with a better answer than "metallic" woven tapes—with little strands of metal woven into them.



BUT here's something far better—PHOENIX WYTEFACE† *non-metallic* Woven Tapes—a great and radical forward stride in tape development.

As one highway engineer puts it: "*it has at least three times the life of ordinary metallic tapes.*"

PHOENIX WYTEFACE has been given the works in grueling field tests—in extremes of climate, in water and mud, over stones and rocks, under truck wheels, through brush and barbed wire—and has come through shining and unscathed.

The secret is, this tape is a weave of amazingly strong synthetic yarns—a scientific wartime development—completely covered by an armor-like plastic coating that is not affected by water, is not brittle, will not flake.

## MORE ACCURATE, TOO

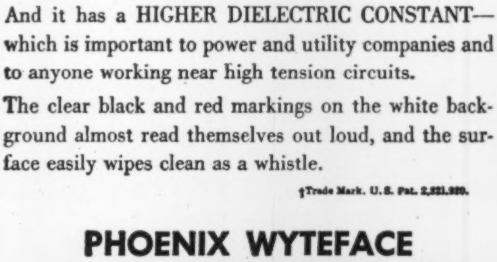
Even after repeated soaking and dryings, this tape won't let you down. It has dimensional stability a lot greater than so-called "metallic" woven tapes.

And it has a HIGHER DIELECTRIC CONSTANT—which is important to power and utility companies and to anyone working near high tension circuits.

The clear black and red markings on the white background almost read themselves out loud, and the surface easily wipes clean as a whistle.

†Trade Mark. U.S. Pat. 2,321,989.

**PHOENIX WYTEFACE**



LOOK! LETTERING WITH MY EYES SHUT (ALMOST) – WITH THE LEROY!
NOW IS TH

## beautiful lettering with little effort

Many engineers make perfect drawings and then mess them up with "home made" lettering. A quick easy way to get lettering and symbols which look like type on your drawings is to use a LEROY* "controlled lettering" outfit, a Keuffel & Esser Co. product.

---

THE MAN WHO HAND LETTERED THIS LINE

DID THIS WITH A LEROY LETTERING SET.

---

And he had had little experience with LEROY, and it took him no more time.

He didn't even have to rough it in with a pencil or draw guide lines. He chose one of several alphabets (templates) in his kit and followed the character grooves with an easy stroke of the scriber. Then the pen formed perfect letters right where he wanted 'em. A blind man could darned near do it!

LEROY lettering is free from risk of smearing, because the template is well removed from the lettering, and, there's no need for erasing. You have a wide choice of sizes and types of lettering, numerals and symbols.

COME ON, ALBANENE!
YEARS
K&E

## a tracing paper for the ages

You practically want to think of posterity when you buy tracing paper. Well, there are drawings around today that were made years and years ago on ALBANENE*, and they are today as crisp and sharp as you could ask—which proves that ALBANENE does not turn brittle or lose its transparency with time.

You see, ALBANENE's transparency is due not to oils that leak and "bleed", but to a synthetic transparentizer that K&E developed specially for this purpose—and not for flavoring popcorn.

*Trade Mark®

Ask your K&E Distributor or Branch for further information on any of these fine products, or for a sample length of PHOENIX WYTEFACE. Or write to Keuffel & Esser Co., Hoboken, N. J.

K&E
partners in creating
For 83 years K&E equipment and materials have been partners of the draftsman, engineer and scientist in shaping the modern world.

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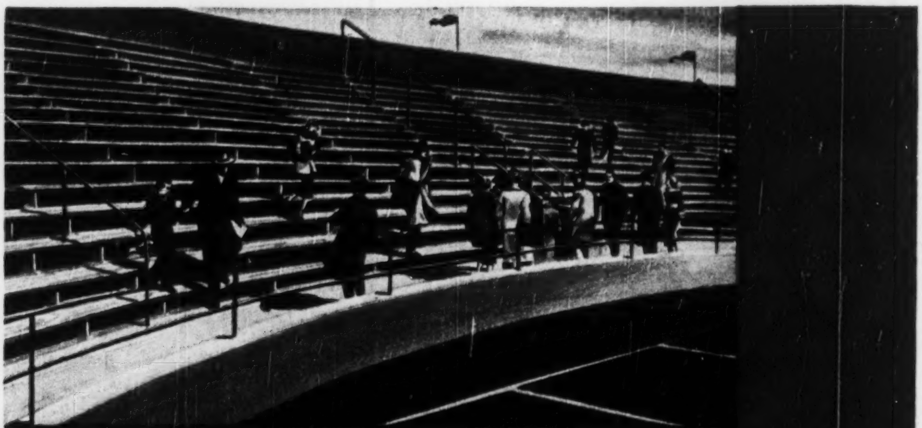


WHERE CLEANLINESS COUNTS

specify

**FOR STADIUM SEATS THAT LAST LONGER**
**build with clean PENTA-PROTECTED wood**

Stadium seats, which are especially subject to decay through constant exposure, can now be protected.

At small extra cost, stadium seats will last longer when built of PENTA-treated wood. PENTAchlorophenol—the modern wood preservative—is clean, does not leach and retains its chemical structure through the years.

For grandstands, loading docks, bridges—and any wood structure, build with PENTA-PROTECTED wood—the wood that's protected against decay and termites. For further information write Dow, Dept. PE 20.

penta-
chlorophenol

**THE CLEAN WOOD PRESERVATIVE!**

***What PENTA means to the utilities***

**Light, power and telephone companies are switching to PENTA. They've found that line crews prefer clean poles treated with PENTA. Long lasting PENTA protection means longer pole life and reduced maintenance costs.**

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

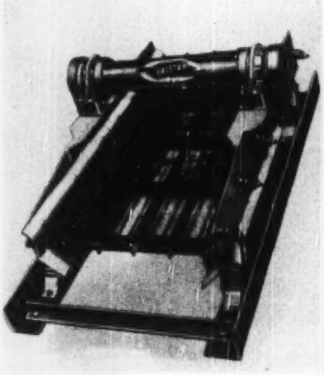
Dow

penta-
chlorophenol

which is hooked through hole in wall tie, permits use of loose wood liners on one face of wall. Strap ties, which can be placed between form panels before or after forms are erected, are sufficiently strong to take full liquid head. Ties break back from face of wall.—Consolidated Concrete Form Corp., 995 Teaneck Road, Teaneck, N. J.

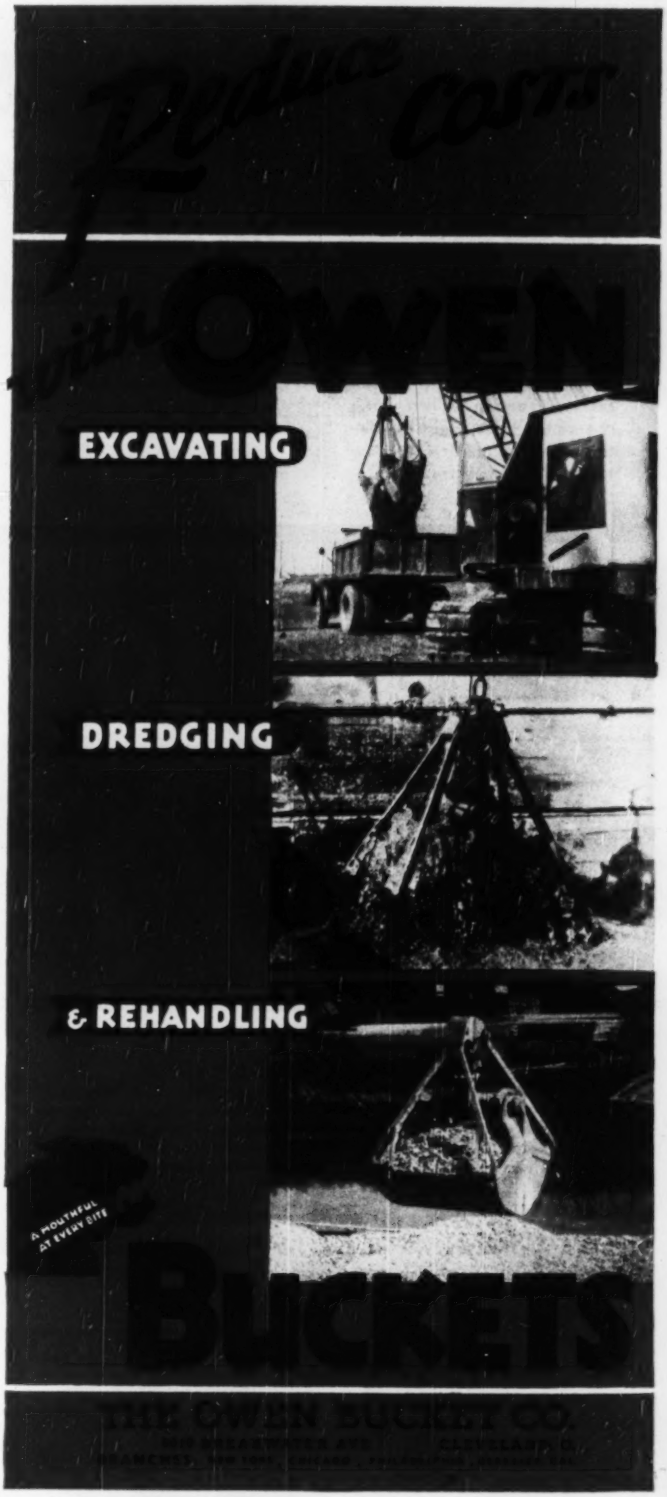
### Single-Axle Trailer Assembly

Two-wheel single-axle assemblies available as complete packaged kits are recommended for transporting equipment weighing as much as 7,000 lb. Each Caravan unit consists of two hub-and-wheel assemblies, two leaf-springs, side-frame or under-frame mounting brackets, and a lunette or clevis-type hitch. In addition, Caravan units can be supplied with 11, 12, or 14-in. brakes, automatic brake-control device, and a front landing-gear assembly to provide a steady rest and facilitate positioning of loaded trailer. The Titanic hydraulically operated braking device applies brakes instantly and smoothly when the towing vehicle slows or stops.—The United Mfg. Co., 47 W. Interstate St., Bedford, Ohio.



### Non-Blinding Ag-Lime Screen

Screening system prevents blinding in handling ag-limestone or other damp, sticky materials. Features include unitized head motion (entire section is demountable as a unit and interchangeable from one screen to another); rapid stroke cycle; and graduated stroke (amplitude of stroke is greater at feed end where bed of material is deepest). Bronze bearing sleeves simplify return of bearings to factory tolerances after normal wear. Screen may be driven from either side by means of interchangeable grooved flywheel. Screen-cloth wear is lengthened by elimination of cloth whipping. Vibration is isolated from supporting structure through supporting springs. — Deister Machine Co., Fort Wayne, Ind.



# Which One is You ?

**type one**

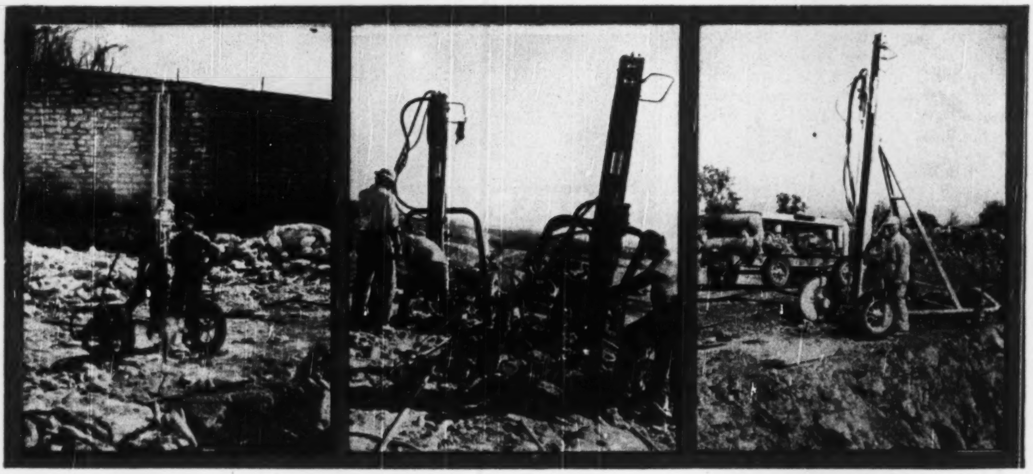
**type two**

**type three**

Do you drill holes all over the lot? A few in this cut—a few for that footing? Then you'll choose the lightweight LCM—the ideal wagon drill for use where moves are frequent.

Do your jobs call for fast drilling? Big footage on every shift? Then you'll want the universal URM—for the last word in wagon drill efficiency and performance.

Do you run into a lot of heavy rock excavation—with cuts up to 40 feet deep? Then the Gardner-Denver WD is the wagon drill for you. It's specially designed for deeper holes.



**LCM FEATURES:**

- Lightweight—easy to move
- Positive feeding pressure
- Convenient feed and drill controls
- Highly maneuverable
- Equipped for 6-foot steel changes

**URM FEATURES:**

- Simple, responsive controls
- Maintains correct bit pressure
- Positive, effortless blowing
- Adjustable wheels and mast
- Handles 6-foot steel changes

**WD FEATURES:**

- Extra powerful blowing
- Air motor feed
- Power operated mast
- Speeds line drilling and broaching
- For 10 or 15-foot steel changes

***Whether your drilling pattern fits Type 1, 2 or 3—choose a Gardner-Denver Wagon Drill for faster, easier drilling. Write for Bulletin WD-1.***

**GARDNER-DENVER** *Since 1859*

Gardner-Denver Company, Quincy, Illinois
*In Canada:* Gardner-Denver Company (Canada) Ltd., Toronto, Ontario

# Manufacturers' Publications

**Adjustment of Transits; Levels**—Two pocket-size booklets contain information to aid in the adjusting of survey ing transits and wye, dumpy, and precision tilting levels. Booklet A lists data on adjustments of transits, suggestions on care and maintenance, and causes of mechanical and instrumental errors and their correction. Booklet B contains similar information for levels.—W. & L. E. GURLEY, TROY, N. Y.

**Welding Directory**—Latest metal-joining information on Eutectic low-temperature welding alloys is available in an 8-p. Directory Welder for 1950. It features descriptions of 65 EutecRods for torch welding and EutecTrodes for arc welding. A complete selection chart is included for information on numerous specialized welding alloys. —EUTECTIC WELDING ALLOYS CORP., 40 WORTH ST., NEW YORK 13, N. Y.

**Ditching Equipment**—Deep-sewer and water-ditching equipment is graphically portrayed in this catalog. It explains fully the features and application of Buckeye Models 120 and 160 service ditchers in a wide variety of applications. — GAR WOOD INDUSTRIES, INC., FINDLAY DIVISION, FINDLAY, OHIO.

**Controlled-Processing Road Machines**—Illustrated brochure describes the self-propelled Pulvi-Mixer and self-propelled Trav-L-Plant. Each machine is fully described by text accompanied by more than nineteen illustrations. In addition to complete specifications, the catalog lists several features including heavy spill-over ahead of rotor to produce repeated remixing, finished mix is easily watched, all controls within easy reach of operator, clear operator's view, and easy maneuverability.—SEAMAN MOTORS, INC., 305 N. 25TH ST., DEPT. I, MILWAUKEE, WIS.

**Crushing and Screening Plants**—Engineering brochure contains many drawings and suggestions for arranging equipment to make up complete portable and semi-portable crushing and screening plants. It contains flow sheets and tables showing arrangements, horsepower requirements and conveyor, and screen and crusher specifications for various hourly production capacities.—NORDBERG MFG. CO., CHICAGO & OKLAHOMA AVES., MILWAUKEE 7, WIS.

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# READER COMMENT

### Survey Found Discouraging

Sir: Your quotations of a fabricator (ENR Dec. 15, p. 23) are rather discouraging to those who are promoting the arc-welding process. The fabricator's statement that none of the bridges that were submitted in the arc-welding contest will ever be built indicates lack of consideration for those engineers who spend much of their own time in finding new concepts of design.

I was fortunate to win in this contest an honorable mention for a triangular truss design, which, I believe, offers many advantages over present methods, both economically and practicably. My design indicates material saving of 40 to 50% when compared with riveted plate-girder design, and I refuse to believe that these savings would be wiped out by added shop and material cost. I am rather inclined to believe that, if given a fair chance, my design will be on even terms with present shop costs for the riveted procedure.

Adoption of a design, such as I submitted, would save highway departments large sums of money and result in more rigid structures of comparable beauty.

R. W. Ullman
*Designer, H. K. Ferguson Co.*
*Cleveland, Ohio*

### Designer Favors Welding

Sir: Your survey on the practice and merit of welding, reported in the Dec. 15 issue, brings into the open a problem of great interest to the engineering profession and the steel industry.

The dependability of polls in detecting true sentiment, particularly when concerned with debatable issues, is subject to considerable doubt. Furthermore, truly representative opinion from a sampling of limited scope is difficult to obtain. While no information is given regarding the extent of the survey, I assume, judging from the results, that it was not so extensive as to represent a true cross section of opinion.

Also, it is not clear how the questions were phrased. Again judging from the replies, I gather that it was a negative sort of inquiry, something like "Why is welding not favored?" or "Why is welding not used?" Even with these qualifications or assumptions, the results of the poll are rather surprising.

The various factors cited in the survey as deterrent to use of welding are the very same arguments advanced some 25 years ago—when the industry was still in its infancy. Progress in welding achieved since then, and the satisfactory service performance and demonstrated merit of welded structures of all types, have apparently made little impression on the adversaries of welding. They raise the same old questions of adequacy and economy. Yet, the report fails to reveal reasonable justifications for such concern.

It is true that the use of welding is handicapped by a number of unfavorable conditions. These include some of the reported complaints of the engineer and the fabricator against each other, as well as against codes and regulations. But it is also a fact that, notwithstanding these handicaps, welding has been utilized in all categories of structures with success and profit. The impressive record of outstanding examples of welded construction—the number of which is much larger than the survey would indicate—is the best evidence of confidence that can be presented to the skeptics. An objective study of this record would clearly demonstrate that any riveted job can be done by welding cheaper, better, with less materials and in a shorter time.

Good welding designs could do a great deal toward advancing the use of welding. The engineer should be concerned more with the quality of his designs and less with the reported lack of cooperation of certain fabricators. If efficient and workable designs are made available, the reluctance of fabricators to bid on welded jobs would soon disappear through the process of competition.

However, a good design cannot be prepared by a mere conversion of its riveted prototype, nor obtained with the ease of a "handbook job." For a proper design, the engineer must have a good knowledge of welding fundamentals, analytical skill and ingenuity to devise advantageous arrangements.

In addition, acceptance of a good design will often require a certain amount of salesmanship. This is due to the fact that in our present system of engineering practice, where an organization is composed of producers and so-called administrators, the decision for the choice of a type, in most cases, is made not by the designer, who may be completely convinced of the merit of welding, but by the administrator. Unfortunately, some administrators, who outwardly profess to be wholly in favor of welding, fail to carry out such a preference. They are the persons in authority who talk welding but practice riveting.

For its own good, the steel industry cannot afford to discriminate against welding; bias and personal prejudice and preferences should have no place in a competitive enterprise motivated by profit. Welding is an aid, not a deterrent to the use of steel. If steel is to retain its position in a construction field of narrowing profit margin—where the pressure of competing materials, such as precast concrete, prestressed concrete, treated and compressed wood, and plastics is being felt more keenly—the steel industry must accept the aid offered by welding and encourage its widespread use.

Arsham Amirikian
*Head Designing Engineer*
*Bureau of Yards & Docks*
*Washington, D. C.*

Editor's Note—Whether or not our welding survey was well or poorly done, Mr. Amirikian's comments support its conclusions. He states that "welding is handicapped by a number of unfavorable conditions"; that "good welding designs could do a great deal toward advancing the use of welding"; that there are "persons in authority who talk welding but practice riveting." The fact is there are not enough designers like Mr. Amirikian who make efficient designs in welding and then work to get them adopted.

### Job-Fitting System

Sir: We read with interest the article entitled "Test Fits Worker to Right Job" published in the Engineering News-Record, Sept. 29, 1949.

It is our feeling that this article graphically portrays the approach taken by this agency to the selection problems of industry.

We should like permission to reprint the article incorporating it into a four page pamphlet for possible distribution to employers through our local employment offices as an aid in arousing interest in this type of service. We plan, pending your approval, to show on page one an introductory statement and review pertinent to our test development activities, pages two and three would be a reprint of your article and page four would show a representative list of tests which we have available to industry. Credit to Engineering News-Record, of course, would be published in the pamphlet.

A. J. Caruso
*Executive Director*
*Bureau of Employment and*
*Unemployment Compensation*
*Harrisburg, Pa.*

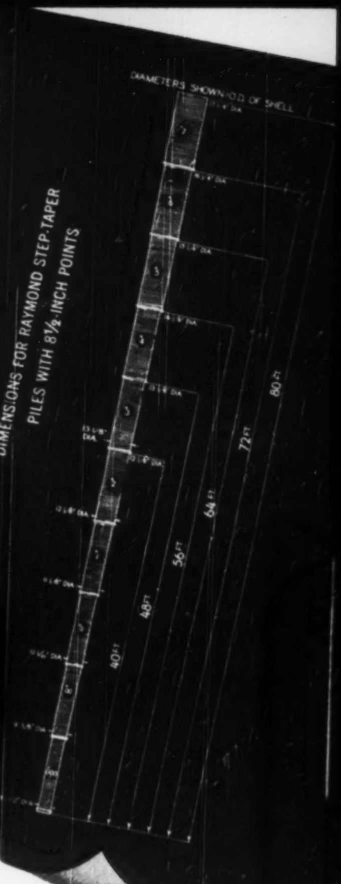
Permission granted.—Editor.

# Raymond MAKES 5 TYPES OF CONCRETE PILES

**1. STANDARD . . . 2. STEP-TAPER . . . 3. PIPE STEP-TAPER**

**4. COMPOSITE. . . 5. GOW CAISSONS**

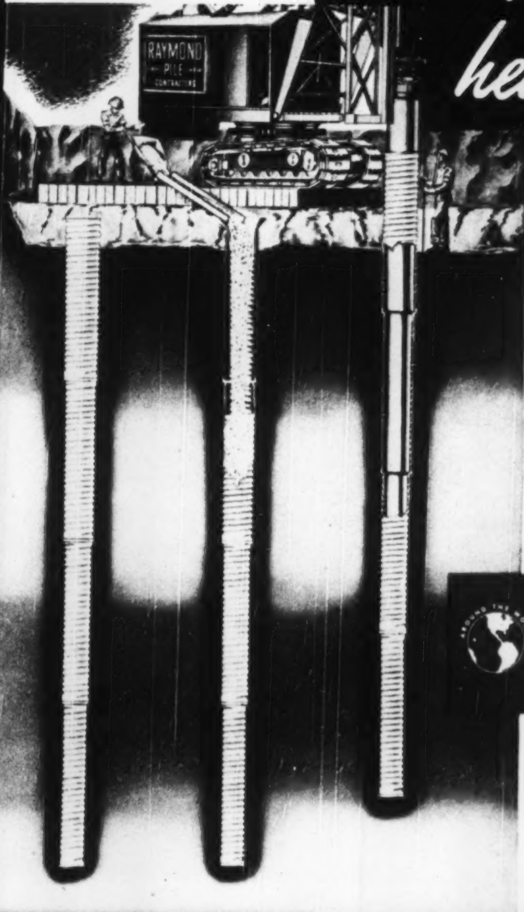
Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, also cement mortar lining of pipes by the Centriline Corporation, a Raymond Subsidiary.


DIAMETERS SHOWN O.D. OF SHELL
DIMENSIONS FOR RAYMOND STEP-TAPER PILES WITH 8½-INCH POINTS
40FT
48FT
56FT
64FT
72FT
80FT

## 2. STEP-TAPER PILES

## FOR *long lengths* WITH *heavy loads*

*At left, completed Step-Taper Pile. Center, filling the permanent steel shell with concrete after internal inspection. Right, driving the pile with rigid core.*



Raymond Step-Taper Concrete Piles driven with rigid steel cores and heavy hammers are designed to develop high load-carrying capacities at depths to 80 feet. The permanent steel shell maintains the resistance developed during driving. After the shell is inspected internally, it is filled with concrete and cut off at the specified elevation.

You are invited to discuss with our engineers the efficiencies and savings made possible by Raymond's exclusive, original concrete pile designs.

◀ RAYMOND PILES MAINTAIN DRIVING RESISTANCE

AROUND THE WORLD **Raymond** CONCRETE PILE CO.

140 CEDAR ST., NEW YORK 6, N. Y.

*BRANCH OFFICES:* Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Salt Lake City, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.

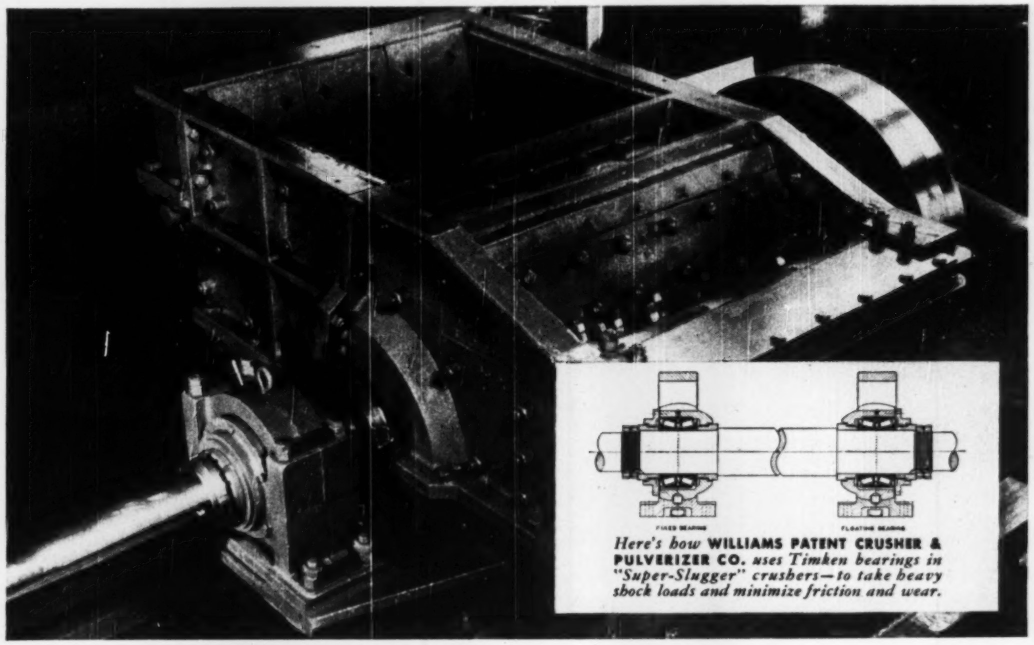
# TIMKEN® bearings help "Super-Slugger" put more power in its punch

USED in the pillow blocks of this Williams "Super-Slugger" crusher, Timken® tapered roller bearings stand up under the severest punishment. With minimum power loss due to friction, the crusher has more power in its punch—crushes maximum yardage throughout a long and trouble-free life.

Due to the line contact between the rolls and races, Timken bearings have tremendous load-carrying capacity — give maximum support and rigidity to heavily stressed shafts. Their tapered roller construction takes both radial and thrust loads in any combination. True rolling motion and incredibly smooth surface finish of the rolls and races enables them to operate with minimum friction under the heaviest loads.

Timken bearings are made of the best steel ever developed for tapered roller bearings—Timken fine alloy steel. For fine bearing performance throughout the life of the machine, specify Timken bearings for all the equipment you make or use. Look for the trade-mark "Timken" on the bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

*This symbol on a product means its bearings are the best*



*Here's how* **WILLIAMS PATENT CRUSHER & PULVERIZER CO.** *uses Timken bearings in "Super-Slugger" crushers—to take heavy shock loads and minimize friction and wear.*

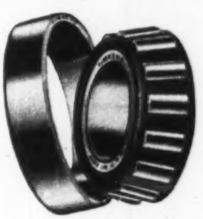
**FINISHED TO CLOSER TOLERANCES**

Finishing to incredible smoothness accounts for much of the precise, smooth rolling performance of Timken bearings. This honing operation is typical of the amazingly accurate manufacturing methods at Timken.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

**TIMKEN**

**TAPERED ROLLER BEARINGS**



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ▯ AND THRUST ▯ LOADS OR ANY COMBINATION